Service Manual

Telephone Equipment

KX-TC911LA-B

(for Latin America)

900MHz Cordless Phone

Simplified

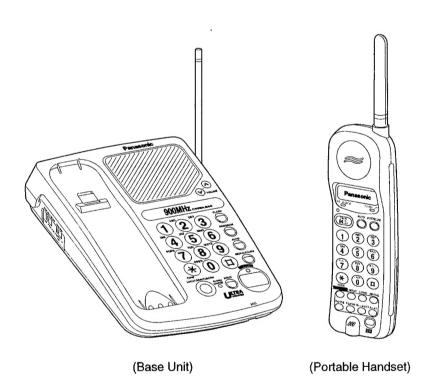
Black Version

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Please use this manual together with the original Service Manual for model KX-TC911-B order No. KM49804245C1. This Service Manual indicates the main differences between: Original KX-TC911-B and KX-TC911LA-B for Latin America.



Panasonic

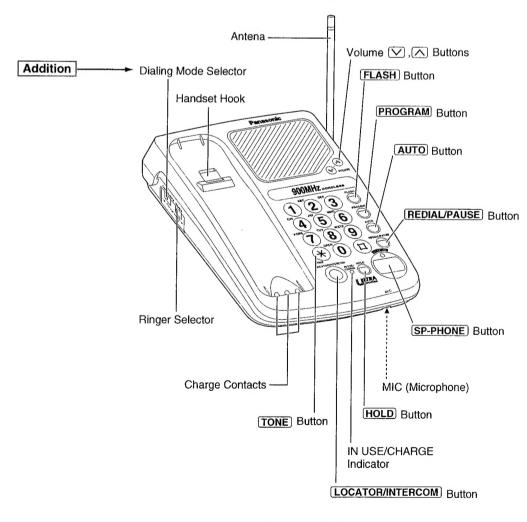
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KX-TC911LA-B

■ PARTS COMPARISON TABLE (Change from original pages 44~50)

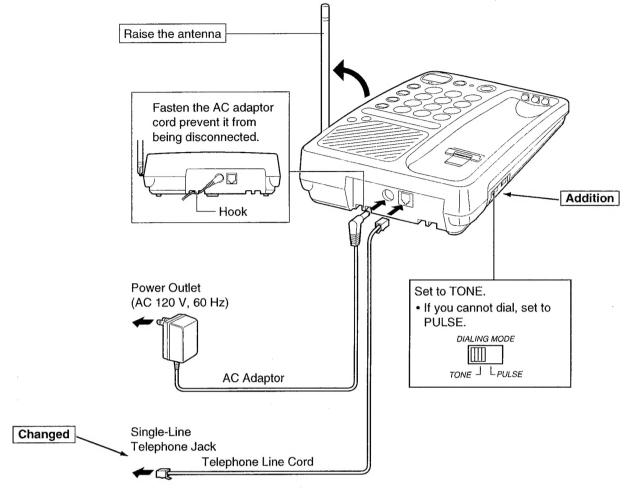
Ref. No.		Part No.	Part Name & Description	Pcs/	Remarks
	KX-TC911-B	KX-TC911LA-B		Set	
Base Un	it				
2	PQYF10126J1	PQYF10126U1	Lower Cabinet	1	
8	PQGT13230Z	PQGT13160Z	Name Plate	1	
PCB1	PQWP1TC911BH	PQWPTC911LAH	P.C.Board Ass'y (RTL)	1	
DC,DD		MA110	Diode (Si)	2	Addition
S301		PQSS2A27W	Switch	1	Addition
R323		PQ4R10XJ103	10kΩ, Resistor	1	Addition
R324		PQ4R10XJ472	4.7kΩ, Resistor	1	Addition
Portable	Handset				
102	PQKF10248Z1	PQKF10248W1	Cabinet Cover	1	
114		PQGT13161Z	Name Plate	1	Addition
Accesso	ries				
A5	PQQW11914Z	PQQW11941Z	Quick Reference Guide (for Portuguese)	1	
A6	PQQX11891Z	PQQX11941Z	Instruction Book (for Spanish)	1	
Packing	Materials				
P5	PQPK12489Z	PQPK12536Z	Gift Box	1	

■ LOCATION OF CONTROLS (Change from original page 3)



(Model KX-TC911LA-B)

■ CONNECTION TO A TELEPHONE LINE (Change from original page 4)

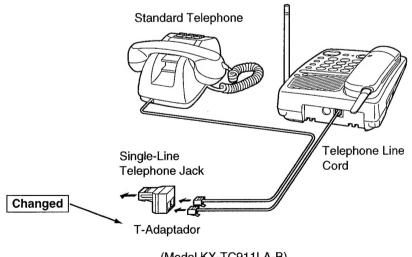


Notes:

- USE ONLY WITH Panasonic AC ADAPTOR KX-TCA1-G.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)

(Model KX-TC911LA-B)

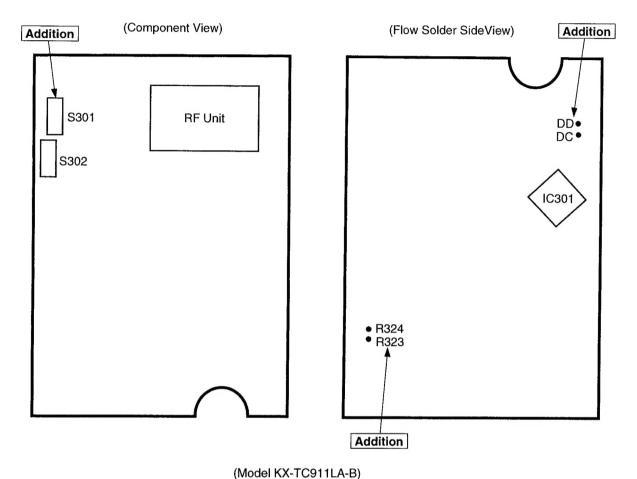
Adding Another Phone



(Model KX-TC911LA-B)

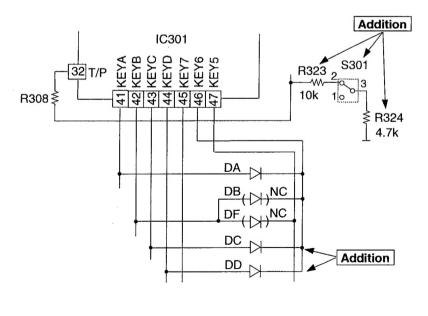
KX-TC911LA-B

■ CIRCUIT BOARD (BASE UNIT) [Change from original page 24]



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SCHEMATIC DIAGRAM (BASE UNIT) [Change from original page 25]



(Model KX-TC911LA-B)

Service Manual

900MHz Cordless Phone

Telephone Equipment

KX-TC911-B KX-TC911-W

(for U.S.A.)







(Portable Handset)

SPECIFICATIONS

	Base Unit	Portable Handset			
Power Source:	AC Adaptor (KX-TCA1-G)	Rechargeable Ni-Cd battery			
Receiving Frequency:	30 channels within 926.1~927.55 MHz	30 channels within 902.1~903.55 MHz			
Receiving Method:	Double super heterodyne	Double super heterodyne			
Transmitting Frequency:	30 channels within 902.1~903.55 MHz	30 channels within 926.1~927.55 MHz			
Oscillation Method:	PLL synthesizer	PLL synthesizer			
Detecting Method:	Quadrature Discriminator	Quadrature Discriminator			
Tolerance of OSC Frequency:	±3.6 kHz	±3.6 kHz			
Modulation Method: F3 (frequency modulation)		F3 (frequency modulation)			
ID Code:	20-bit	20-bit			
Dial Mode:	Tone (DTMF)/Pulse	Tone (DTMF)/Pulse			
Redial:	Up to 30 digits	Up to 30 digits			
Speed Dialer:	Up to 16 digits	Up to 16 digits			
Power Consumption:		21 days at Standby, 6 hours at Talk			
Dimension (H×W×D):	$2^{9}/_{32}"\times6^{13}/_{16}"\times8^{15}/_{32}"$ (58×173×215 mm)	$10^{13}/_{32}" \times 2^{1}/_{8}" \times 1^{11}/_{32}" (244 \times 54 \times 60 \text{ mm})$			
Weight	1.18 lbs. (536 g) with spare battery	0.54 lbs. (244g) with battery			

Design and specifications are subject to change without notice.

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When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

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SCHEMATIC DIAGRAM (Base Unit)	

STANDARD BATTERY LIFE

If your Panasonic battery is fully charged;

While in use (TALK)	Up to about 6 hours			
While not in use (Stand-By)	Up to about 21 days			

- · Battery life may vary depending on usage conditions and ambient temperature.
- Clean the handset and base unit charge contacts with a soft dry cloth once a month.
 Clean more often if the unit is subject to grese, dust or high humidity. If not, the battery may not charge properly.
- If the battery is fully charged, you do not have to place the handset on the base unit until the RECHARGE indicator flashes. This will maximize the battery life.
- · The battery cannot be overcharged.

LOCATION OF CONTROLS

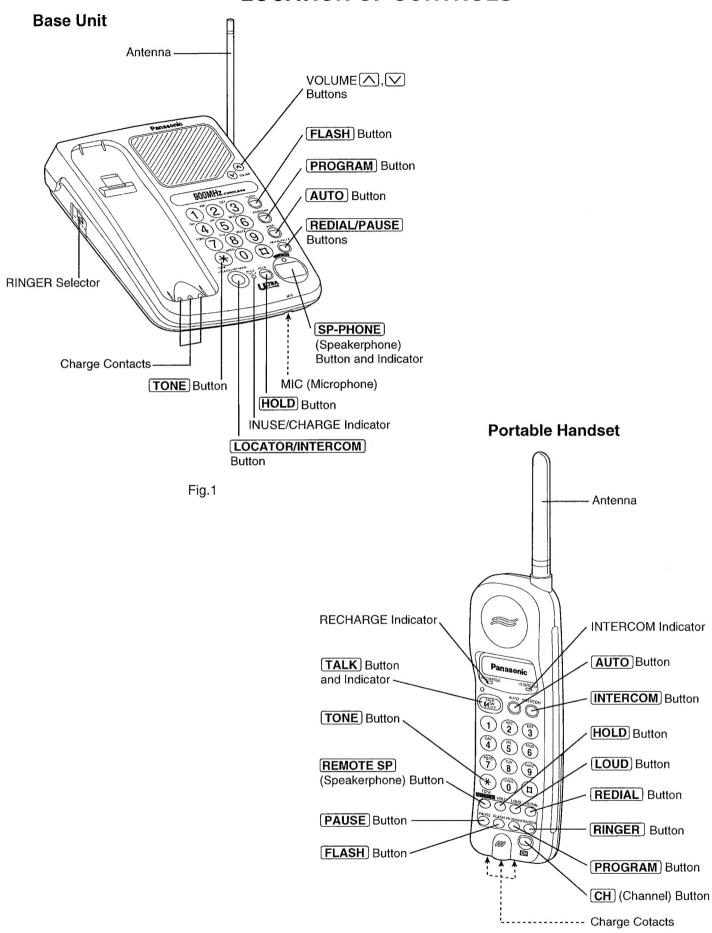
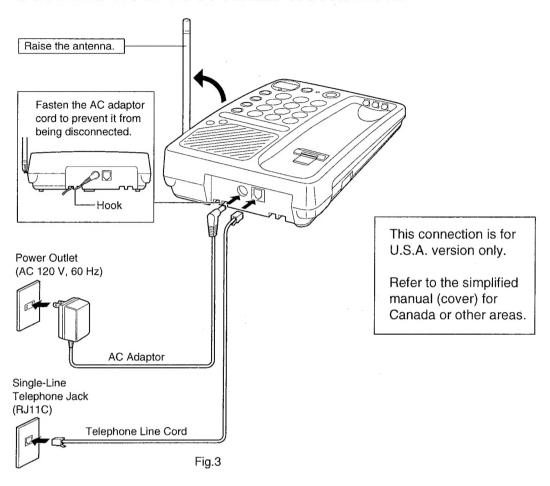


Fig.2

CONNECTION TO A TELEPHONE LINE



Notes:

- USE ONLY WITH Panasonic AC ADAPTOR KX-TCA1-G.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)

Adding Another Phone

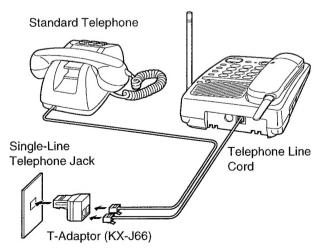


Fig.4

NEW OPERATION

Selecting the Dialing Mode

You can program the dialing mode by using the handset near the base unit. If you have touch tone service, set to TONE. If rotary service is used, set to PULSE. The factory preset is TONE.

The TALK and SP-PHONE indicator lights must be off before programming.

- Press (PROGRAM)
 - The TALK indicator flashes.
- press AUTO
- To select PULSE, press # twice.

To select TONE, press X twice.

When finished, press (PROGRAM) 4



Simultaneous Keypad Dialing

You can use the base unit like a standard telephone. After pressing TALK) to make a call with the handset near the base unit, you can also dial using the base unit keypad.

- Handset: Press TALK
- Base unit: Dial a telephone number while hearing a dial tone with the handset.
 - · When the other party answers, talk using the handset.
- Handset: To hang up, press TALK or place the handset on the base unit.



Useful information

You can enter numbers using the base unit keypad during a call with the handset. For example, to access an answering service, electronic banking service, etc.

- 1. Handset: Press TALK .
- 2. Handset:

Dial a telephone number.

- You may also dial with the base unit keypad.
- 3. Base unit:

Enter the required numbers while listening to the pre-recorded instrucions.

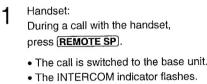
4. Handset:

To hang up, press TALK or place the handset on the base unit.

Simultaneous Keypad Dialing is available only after pressing REMOTE SP or TALK.

Remote Speakerphone

You can switch a call with the handset to the speakerphone easily.



Base unit:

To hang up, press SP-PHONE

· You can also hang up by



When you use REDIAL/PAUSE or REDIAL, dial a stored number, etc., press [REMOTE SP] after dialing is completed.

You can turn on the base unit speakerphone by using the handset as a remote control.

Making calls with the remote speakerphone

1. Handset:

Press REMOTE SP

2. Handset:

Dial a telephone number.

- You may also dial with the base unit keypad.
- 3 Base unit:

Talk into the MIC.

4. Handset:

To hang up, press REMOTE SP

You may also hang up by pressing SP-PHONE.

When you redial

A number dialed with the handset keypad is saved in the handset. A number dialed with the base unit keypad is saved in the base unit.

To switch to the handset (while using the remote speakerphone)

Press TALK.

- You can continue the conversation using the handset.
- To hang up, press TALK or place the handset on the base unit.

When you use [REDIAL/PAUSE] or [REDIAL], dial a stored number, etc., press **TALK** after dialing is completed.

Answering calls with the remote speakerphone

1. Handset:

Press (REMOTE SP).

2. Base unit:

Talk into the MIC.

3. Handset:

To hang up, press (REMOTE SP).

• You may also hang up by pressing SP-PHONE.

Speed Dialer (Handset)

Storing Phone Numbers in Memory

You can store up to 10 phone numbers in the handset. The dialing buttons (0 to 9) function as memory stations. **The TALK indicator light must be off before programming.**

Press PROGRAM

· The TALK indicator flashes.

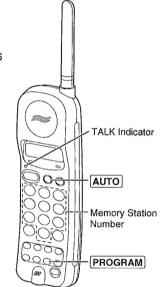
2 Enter a phone number up to 16 digits.

If you misdial, press
 (PROGRAM) to end storing, then restart from step 1.

3 Press AUTO.

Press a memory station number (0 to 9).

- A confirmation tone sounds.*
- To store other numbers, repeat steps 1 through 4.



*What the confirmation tone means

1 beep: The new number is stored.

2 beeps: The number is the same as the previously stored one.

To erase a stored number

Press **PROGRAM** → **AUTO** → the memory station number (0 to 9) for the phone number to be erased.

Dialing a Stored Number

1 Press TALK.

Press AUTO.

Q Press the memory station number (0 to 9).

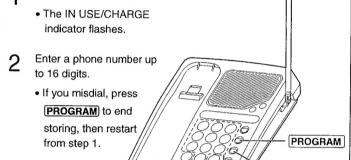
• The stored number is dialed.

• Numbers stored in the handset can only be dialed by the handset.

Speed Dialer (Base Unit)

Storing Phone Numbers in Memory

You can store up to 10 numbers in the base unit. The dialing buttons (0 to 9) function as memory stations. The SP-PHONE indicator light must be off.



AUTO

Memory Station

Number

IN USE/CHARGE

Indicator

3 Press AUTO

Press a memory station number (0 to 9).

Press PROGRAM

 A confirmation tone sounds.*

 To store other numbers, repeat steps 1 through 4.

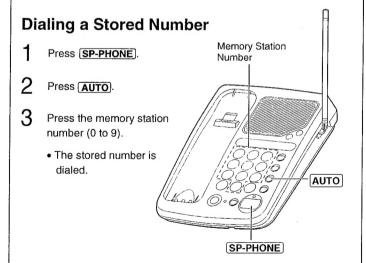
*What the confirmation tone means

1 beep: The new number is stored.

2 beeps: The number is the same as the previously stored one.

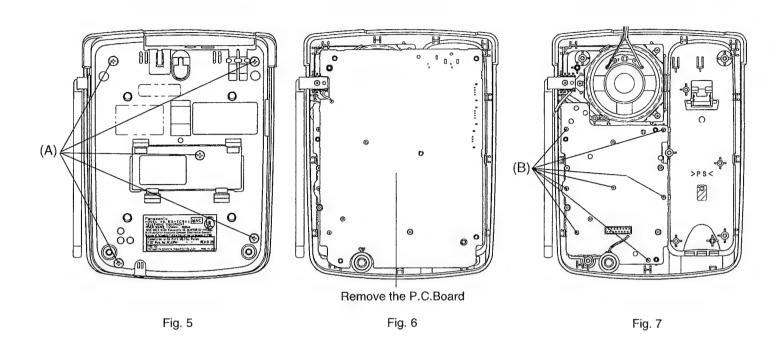
To erase a stored number

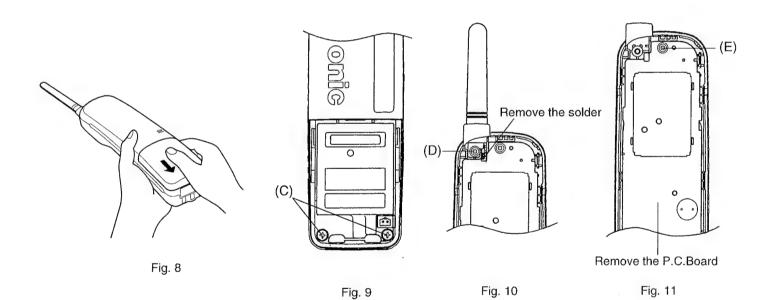
Press **PROGRAM** → **AUTO** → the memory station number (0 to 9) for the phone number to be erased.



• Numbers stored in the base unit can only be dialed by the base unit.

DISASSEMBLY INSTRUCTIONS





Ref No.	Procedure	Shown in Fig. –	To Remove	Remove
1	1	5	Lower Cabinet	Screws (3×14) (A)×5
2	1, 2	6	Main P.C. Board	Remove the P.C.Board
3	1~3	7	Operation P.C. Board	Screws (2.6×10)(B)×7
4	4	8	Battery Cover	Remove the Battery Cover
5	4, 5	9	Rear Cabinet	Screws (2.6×12) (C)×2
6	4~6	10	Antenna	Screw (2.6×12) (D)×1
7	4~7	11	Main P.C. Board	Screw (2.6×12) (E)×1

ADJUSTMENT

OBJECTIVE

This procedure will enable the technician to make adjustments to the KX-TC911-B/KX-TC911-W PORTABLE HANDSET and BASE UNIT.

GENERAL INFORMATION

This procedure has 2 sections. The first section instructs the technician on how to align the PORTABLE HANDSET. We recommend aligning the PORTABLE HANDSET first, since you will need the PORTABLE HANDSET to align the BASE UNIT. The second section aligns the BASE UNIT. You can use either section separately, or together to align the entire cordless phone unit.

At the beginning of each section, you will find a preparation procedure instructing you on how to prepare the unit to the point of placing the unit in TEST mode. Please follow this procedure to insure proper alignment.

Each section's procedure consists of Adjustment Items adjusting one specific variable hardware component.

Each Item lists the equipment needed, how to connect and setup the equipment, how to make the adjustment, and how to verify the adjustment if necessary.

Before the actual procedure, you will find a procedure detailing how to place that part in TEST mode. You will have to perform this procedure before each individual Adjustment Item.

Once aligned, please remove all equipment connections and solder points, and reassemble the unit. As a final check, power up the phone and check for PORTABLE HANDSET linking with the BASE UNIT.

EQUIPMENT

- Radio Tester: Marconi Model 2295A or later.
- 4.5 digit Digital Multimeter: B&K Model 2833 or compatible.
- 3. Oscilloscope, single or dual channel: Panasonic VP-5512P100 or compatible.
- 4. Telephone Analyzer: B&K Model 1050 or compatible.
- 5. DC Power Supply, capable of supply 3.9V DC at 100mA NOTE: only needed if Telephone Analyzer does not have DC VOLTS output available.
- 6. High Frequency Attenuator, 10dB or greater.
- 7. Corded Telephone.
- 8. High Frequency Cable: BNC end to open end.
- 9. Audio Cable: BNC end to alligator clip end.
- 10. High Frequency Adjustment Tool:
- 11. Isolation Capacitors, quantity of 2, 10 μF maximum, 50V DC or greater.
- 12. Soldering Iron, solder, and various tools.

PORTABLE HANDSET PREPARATION

Please perform the following steps to prepare the PORTABLE HANDSET for alignment. Please refer to the PORTABLE HANDSET REFERENCE DRAWING for connection and test point locations.

- 1. Remove battery cover and battery.
- 2. Remove both screws at the case bottom.
- 3. Grabbing hold of the back near the bottom, gently pry off the back of the case.
- 4. Remove the antenna mounting screw. While heating the antenna solder connection, pull out the antenna.
- Remove the top P.C.Board mounting screw.
- 6. Unsolder both speaker connections on P.C.Board.
- 7. Remove the PORTABLE HANDSET P.C.Board.
- 8. Remove the keypad membrane.
- 9. Solder High Frequency Cable open end to ANT and RF GND points.
- 10. Using the Digital Multimeter, measure DC VOLTS output on the Telephone Analyzer. Adjust the output voltage to 3.9V DC.
- 11. Solder battery connection wires at the points shown in the PORTABLE HANDSET REFERENCE DRAWING. Solder the positive lead to TP-Vpp, towards the component side of the P.C.Board. Solder the negative lead to the TP-Vss. **DO NOT APPLY POWER TO THE PORTABLE HANDSET AT THIS TIME!!!!!!**
- 12. Solder a small, insulated piece of wire to GND as well.
- 13. Solder 1 isolation capacitor's positive lead to **SP+** test point (TP4). When soldering, keep the lead close to the P.C.Board as possible since you will lay the keypad membrane over part of this lead.
- 14. Solder a small, short, insulated wire to MIC test point (TP8).
- 15. Lay the keypad membrane over the keypad switch contacts.

SYMPTOM/REMEDY TABLE

If you have one of the listed symptoms, please refer to this table and make the appropriate adjustments.

SYMPTOM	REMEDY
Speaker level is unstable	Adjust Item (A).
Does not link with BASE UNIT	Adjust Items (B) and (C).
Tx sound is unstable	Adjust Item (D).

PORTABLE HANDSET ADJUSTMENT PREPARATION

Please perform the following procedure before starting the Adjustment Procedure. You only have to perform this procedure only once to complete all Items, but you will have to perform this procedure to make an individual Adjustment Item.

- 1. You will need all equipment listed in the Item's EQUIPMENT section.
- 2. Setup all equipment as specified in the Item's PROCEDURE section SETUP portion.
- 3. Apply power to the PORTABLE HANDSET, and press TALK key.
- 4. Press 5, 8 and 0 keys at the same time.
- 5. Release the 3 keys. You should hear the PORTABLE HANDSET beep. If you do not hear a beep, remove the power from the PORTABLE HANDSET and repeat the last 2 steps.
- 6. Press the **INTERCOM** key, then press the **TALK** key. PORTABLE HANDSET should now be in TEST MODE (CH 1 TALK). The IN USE should be on. If the PORTABLE HANDSET is not in TEST MODE, remove the power and repeat the last 3 steps.
- 7. Remove the keypad membrane and lay it aside to prevent pressing some button by mistake during alignment.

ADJUSTMENT PROCEDURE

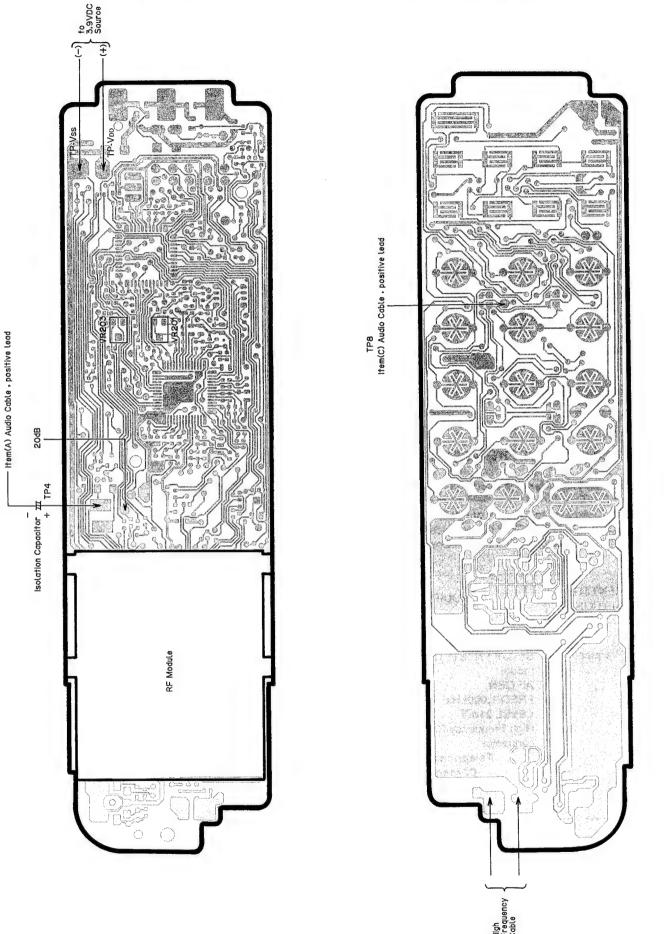
ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE		
(A) SP Output	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 902.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 6.000 kHz High Frequency Cable to left RF Connector. Audio Cable positive lead to isolation capacitor, negative lead to GND, BNC end to AF INPUT connector.	Adjust VR203 until AF VOLTS equals -35 dBV +/-1 dBV Note This voltage reading is with no speaker or load attached to the PORTABLE HANDSET P.C.Board.		

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE
(B) 20dB Electric Detection (RX sensitivity confirmation and squelch adjustment)	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 902.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 6.000 kHz One end of BNC cable to left RF connector, other end to Attenuator Input. Audio Cable positive lead to isolation capacitor, negative lead to GND, BNC end to AF INPUT connector. Oscilloscope SETUP X1 probe connected to INPUT 1. Probe ground connected to GND. TIME/DIV 1ms VOLT/DIV 1V Auto trigger Attenuator SETUP High Frequency Cable to Attenuator Output.	On Marconi, press SINAD until the display shows the SINAD value and press dB. Then press RF GEN and LEVEL. Lower RF GEN LEVEL at SINAD 12 dB and confirm that RF GEN LEVEL is less than 5 dBμV. When level is more than 5 dBμV, change RF unit. Attach the oscilloscope probe to 20 dB test point. When RF GEN LEVEL is set at +8 dBμV, confirm that the signal of 20 dB TEST POINT is Low. After that, set RF GEN LEVEL at -7 dBμV, and confirm that the signal of 20 dB TEST POINT is High. When level is NG, change RF unit.
(C) MIC Input (MIC Modulation)	Marconi SETUP Put in Transmitter Test mode. AF GEN FREQ 1.000 KHz LEVEL 15 mV Connect High Frequency Cable to right RF connector. Connect Audio Cable positive lead to MIC, negative lead to GND, BNC end to AF GEN OUTPUT.	Adjust VR202 until Marconi MOD LEVEL equals 7 kHz +/- 0.5 kHz.
(D) Standard Frequency	Marconi SETUP Put in Transmitter Test mode. AF GEN FREQ 1.000 kHz LEVEL 21 mV Connect High Frequency Cable to right RF connector. Connect Audio Cable positive lead to MIC, negative lead to GND, BNC end to AF GEN OUTPUT	Check Marconi TX FREQ equals 926.100 MHz +/-0.003 MHz. When value is overed 926.100 MHz +/-0.003 MHz, change RF unit. Note This Item's setup is exactly the same as Item (C). If you have done Item (C), simply look at TX FREQ and make the adjustment.

Once aligned, please perform the following procedure.

- 1. Disconnect all equipment and solder connections. Use solder wick to clean up any solder you added.
- 2. Install the keypad membrane on top of the PORTABLE HANDSET keys.
- 3. Install the PORTABLE HANDSET P.C.Board.
- 4. Solder speaker wires back onto the P.C.Board observing correct polarity.
- 5. If you will align Item (C) RX Input in BASE UNIT, then solder a short wire across the MIC leads. Remember to unsolder this wire after you completed the BASE UNIT alignment.
- 6. Insert antenna into the case.
- 7. Install antenna and top P.C.Board mounting screws and solder antenna connection.
- 8. Install case back and bottom mounting screws.
- 9. DO NOT INSTALL THE BATTERY AT THIS TIME!!!!!!

PORTABLE HANDSET REFERENCE DRAWING



BASE UNIT PREPARATION

Please prepare the BASE UNIT before performing any adjustment procedures. Refer to the BASE UNIT REFERENCE DRAWING for connection and test point locations.

- 1. Unscrew all 5 screws from bottom of cabinet. Remove cabinet bottom.
- Unsolder antenna wire at RF module.
- 3. Solder a test mode diode **DA** as shown on the BASE UNIT REFERENCE DRAWING.
- 4. Solder one isolation capacitor's positive lead to the main P.C.Board **TIP** point and the other isolation capacitor's positive lead to the main P.C.Board **RING** point.
- Connect the Audio Cable, positive lead to the TIP isolation capacitor's free lead, the negative lead to the RING isolation capacitor's free lead. Do not connect the BNC end of the cable.
- 6. Connect the Telephone Analyzer PHONE TEST JACK #1 to the BASE UNIT P.C.Board phone jack.
- 7. Connect the corded telephone to the Telephone Analyzer PHONE TEST JACK #2.
- 8. Remove main P.C.Board from cabinet top and place beside cabinet.
- 9. Solder High Frequency Cable open end to ANT and RF GND as specified in BASE UNIT REFERENCE DRAWING.

SYMPTOM/REMEDY TABLE

If you have one of the listed symptoms, please refer to this table and make the appropriate adjustments.

SYMPTOM	REMEDY
Transmission sound to PORTABLE HANDSET receiver is unstable	Adjust Items (A) and (B).
Does not link with PORTABLE HANDSET	Adjust Items (C) and (D).

BASE UNIT ADJUSTMENT PREPARATION

Please perform the following steps to prepare the BASE UNIT for the Adjustment procedure.

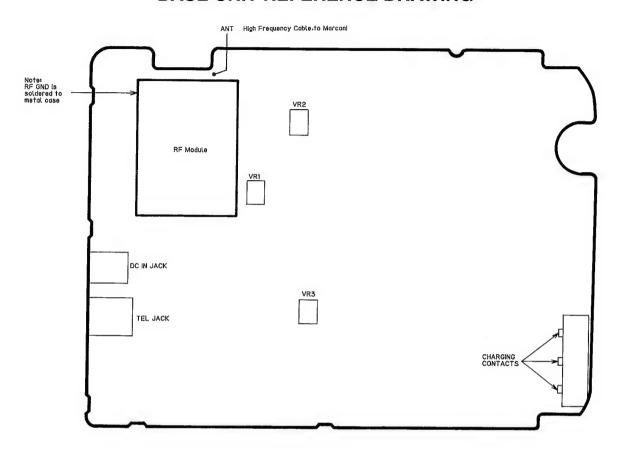
- 1. Connect P.C.Board to all equipment as specified in PROCEDURE section, SETUP portion.
- 2. Connect AC Adaptor to AC Jack of BASE UNIT main P.C.Board.
- 3. Press **LOCATOR/INTERCOM** button twice. BASE UNIT P.C.Board should be in TEST MODE (CH1 TALK). If unit is not in TEST MODE, remove power from P.C.Board and repeat last step.

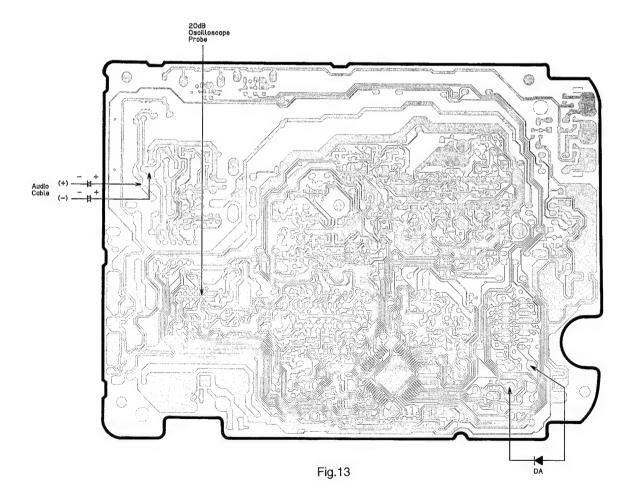
ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE Check Marconi TX FREQ equals 902.100 MHz +/-0.003 MHz. When value is overed 902.100 MHz +/-0.003 MHz,			
(A) Standard Frequency	Marconi SETUP Place in Transmitter Test mode. AF GEN FREQ 1.000kHz LEVEL 21mV High Frequency Cable to right RF connector. Telephone Analyzer Corded Phone Take phone off hook				

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE			
(B) TX Output	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 926.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 5.000 kHz High Frequency Cable to left RF connector. Audio Cable positive lead to TIP isolation capacitor, negative lead to RING isolation capacitor, BNC end to AF INPUT connector. Telephone Analyzer Corded Telephone Take phone off hook	Adjust VR1 until AF VOLTS equals -17.7 dBV +/- 2 dBV Note You do not need to take the corded phone off hook, but you will hear the 1kHz tone. This will insure that your setup is probably working.			
(C) RX Input (Line Modulation)	Marconi SETUP Place in Transmitter Test mode. AF GEN FREQ 1.000kHz LEVEL 21mV High Frequency Cable to right RF connector. Telephone Analyzer Corded Phone Take phone off hook KX-TC911-B/KX-TC911-W Portable Handset Placed in TEST mode by inserting battery while pressing 1, 9 and ★ keys	Adjust VR2 until MOD LEVEL equals 6.5 kHz +/-0.5 kHz Notes You need to place the PORTABLE HANDSET in TEST mode to drown spurious RF signals being picked up at the BASE UNIT. By shorting the MIC leads insures that you are sending an unmodulated RF signal. You need the corded phone off hook to keep the telephone analyzer from sending a dial tone to the unit under test. The dial tone adds to the MOD LEVEL value greatly.			
(D) 20dB Electric Detection (RX sensitivity conformation and squelch adjustment)	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 926.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 5.000 kHz One end of BNC cable to left RF connector, other end to Attenuator Input.Audio Cable positive lead to TIP isolation capacitor, negative lead to RING isolation capacitor, BNC end to AF INPUT connector. Oscilloscope SETUP X1 probe connected to INPUT 1. Probe ground connected to GND. TIME/DIV 1ms VOLT/DIV 1V Auto trigger Attenuator SETUP High Frequency Cable to Attenuator Output Telephone Analyzer Corded Phone Take off hook	On Marconi, press SINAD until the display shows the SINAD value and press dB. Then press RF GEN and LEVEL. Lower RF GEN LEVEL at SINAD 12 dB and confirm that RF GEN LEVEL is less than 5 dBμV. When level is more than 5 dBμV, change RF unit. Attach the oscilloscope probe to 20dB test point. When RF GEN LEVEL is set at +8 dBμV, confirm that the signal of 20 dB TEST POINT is Low. After that, set RF GEN LEVEL at -7 dBμV, and confirm that the signal of 20 dB TEST POINT is High. When level is NG, change RF unit.			

Once aligned, please reassemble the base unit. Also take off the back of the PORTABLE HANDSET and unsolder the MIC lead short wire if you previously installed it.

BASE UNIT REFERENCE DRAWING





HOW TO CHECK THE RF UNIT

Factory supply only assembled RF unit for base unit and portable handset of KX-TC911-B/KX-TC911-W. (Factory does not supply each parts on RF Unit.) When checking the RF Unit, refer to pages 15 and 16.

Portable Handset

- 1) Warm up the Marconi Radio Tester for at least 30 minutes to allow internal crystal oscillation to become stable.
- 2) Refer to figures below for portable handset wire connections.
- 3) Disconnect the handset antenna from the PCB. If you allow the antenna to remain and be a load, the readings will be wrong.
- 4) Supply DC 3.9V Handset PCB using a DC power supply.
- 5) Solder RF cable to ANT and GND and connect BNC side to Marconi. Use 100 W max. RF Input.
- 6) Press TALK, then press "5", "8" and "0" simultaneously.
- 7) Press DIRECT or INTERCOM, press TALK.

Carrier Frequency Check:

- 1. Set Marconi to Transmit Test (press TX TEST button).
- 2. Check TX Frequency = 926.100 MHz+/-3.0 kHz.
- 3. When value if off, adjust VRfreq.
- 4. If can't adjust replace RF PCB.

Transmit Power Check:

- 1. Press dBm button on Marconi.
- 2. Check Marconi TX Power reading. It should equal -3.5 dBm+/-4 dBm (-7.5 dBm ~ +1.5 dBm).
- 3. When the value if off, adjust VRpow to -3.5 dBm.
- 4. If can't adjust replace RF PCB.

Receiving Sensitivity Check:

- 1. Connect audio cable BNC side to AF INPUT in Marconi and other side to TP-AF and TP-VSS (GND).
- 2. Set Marconi to RX TEST mode. Enter the following setting:
 - (a) Frequency = 902.100 MHz
 - (b) Level = $60 dB\mu V$
 - (c) Set Modulation = 1.000 kHz
 - (d) Level = 6.000 kHz
- 3. Press the SINAD button on Marconi until the display shows SINAD value. Press the dB button.
- 4. Press the RF GEN and LEVEL button.
- 5. Using the VARIABLE knob on Marconi decrease RF GEN LEVEL value until SINAD value is 12 dB.
- 6. Check the RF GEN LEVEL. This should be less than -2 dBμV (+4 dBμVemf). If can't adjust replace RF PCB.

Squelch Check:

- 1. Connect scope probe (X1) lead to TP-20 dB, negative to TP-VSS and BNC end to scope.
- 2. Set scope to the following codition: TIME/DIV = 1 msec, VOLT/DIV = 1 V
- 3. Set RF GEN LEVEL to +2 dBµV (+8 dBµVemf). Check scope voltage is LOW.
- 4. Set RF GEN LEVEL to -13 dBμV (-7 dBμVemf). Check scope voltage is HIGH.
- 5. When scope does not show above condition, adjust VRsql until scope voltage toggles between LOW & HIGH.
- 6. When RF GEN LEVEL is -5.5 dBμV (+0.5 dBμVemf). If can't adjust replace RF PCB.

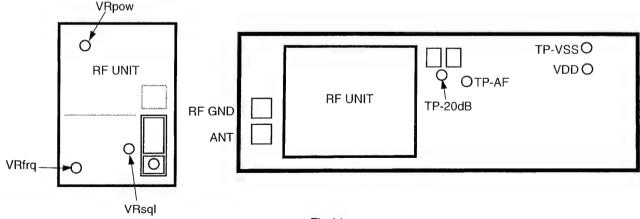


Fig.14

Base Unit

- 1) Please refer to figures below for base unit wire connection.
- 2) Solder wire connections from TEST to TEST COM.
- 3) Connect the AC Adaptor (KX-TCA1-G) to base unit.
- 4) Press LOCATOR twice to set base to test mode.

Carrier Frequency Check:

- 1. Solder RF cable to ANT and RF GND.
- 2. Set Marconi to Transmit Test mode by pressing TX TEST.
- 3. Check TX Frequency as shown on CRT. This should be 902.100 MHz+/-3 kHz.
- 4. Adjust value when this is above 902.100 MHz+/-3 kHz. If can't adjust replace RF PCB.

Transmit Power Check:

Check TX POWER reading equals to -7 dBm+/-4 dBm (reading should -11 dBm ~ -3 dBm).

If reading is given in μ W, press **dB** button.

When value if off, adjust VRpow to -7 dBm. If can't adjust replace RF PCB.

Receiving Sensitivity Check:

- 1. Connect audio cable positive lead to TP-AF, negative lead to TP-AGND and BNC end to AF INPUT.
- 2. Set Marconi to Receiver Test mode by pressing RX TEST. Enter the following value:
 - (a) RF Erequency = 926100 MHz
 - (b) LEVEL = 60 dBμV
 - (c) Modulation Frequency = 1.000 kHz
 - (d) LEVEL = 5.000 kHz
- 3. Press SINAD button until the display shows the SINAD value and press dB button.
- 4. Press RF GEN and LEVEL buttons. Using the VARIABLE knob. Decrease RF GEN LEVEL until SINAD value is 12 dB.
- 5. Check the RF GEN LEVEL equals less than -2 dBμV (+4 dBμVemf). When value is over, change RF unit.

Squelch Check:

- 1. Keep same RX TEST settings as in Receiving Sensitivity Check.
- 2. Connect scope (X1) positive lead to TP-SQL, negative lead to TP-AGND and BNC end to scope. Set scope to following codition.
 - (a) TIME/DIV = 1 msec.
 - (b) VOLT/DIV = 1 V
- 3. Set RF GEN LEVEL to +2 dBμV (+8 dBμVemf). Check scope voltage is LOW.
- 4. Set RF GEN LEVEL to -13 dBμV (-7 dBμVemf). Check the scope voltage is HIGH.
- 5. When the scope does not above condition, adjust VRsql until scope voltage toggles between LOW & HIGH.
- 6. When RF GEN LEVEL is **-5.5** dBμVemf (+0.5 dBμVemf). If can't adjust replace RF PCB.

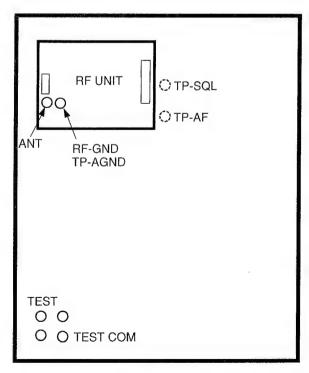


Fig.15

CPU DATA (Base Unit)

IC301 MN150832KB1

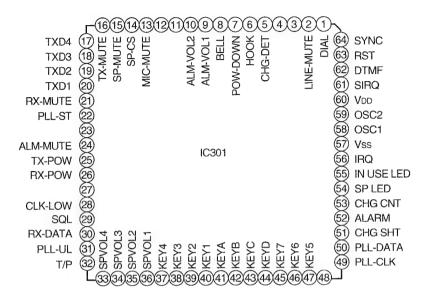


Fig.16

D:-	Description	1/0	High	Low	High-Z	Pin	Description	1/0	High	Low	High-Z
Pin	Description				riigii-Z					Hi-Z: Max	1119112
1	DP RLY	1/0	OFF	ON	-	33	SP-VOL1	1/0	Low	Hi-Z	
2	LINE MUTE	1/0	QN	OFF	-	34	SP-VOL2	1/0	Hi-Z	Hi-Z	
3	Not Used	1/0	-	Fixed	-	35	SP-VOL3	1/0	Low	Hi-Z	
4	Not Used	1/0	-	Fixed	-	36	SP-VOL4	1/0	-	Active	Normal
5	M.CHG DET	1/0		Charge	-	37	KEY-STROBE	1/0	_	Active	Normal
6	EX HOOK	1/0	OFF HOOK	_	-	38	KEY-STROBE	1/0	_	Active	Normal
7	POW DOWN	1/0		Down	-	39	KEY-STROBE	1/0	_	Active	Normal
8	BELL	1/0		Bell in		40	KEY-STROBE	1/0	OFF	ON	Nomai
9	ALM VOL.1		Hi_ZHigh	Hi_ZMid	LowLow	41	KEY IN		OFF	ON	
10	ALM VOL.2	1/0	Hi_Z	Low	Low	42	KEY IN		OFF	ON	-
11	Not Used	1/0		Fixed	-	43	KEY IN		OFF	ON	-
12	Not Used	1/0		Fixed	-	44	KEY IN		OFF	Active	Normal
13	MIC MUTE	1/0	ON	OFF	-	45	KEY-STROBE	1/0	-	Active	Normal
14	SP-CS	1/0	ON	OFF	-	46	SW-STROBE	1/0	-	Active	Normal
15	SP-MUTE	I/O	ON	OFF	-	47	SW-STROBE	1/0	- DV		Normai
16	TX MUTE	1/0	ON	OFF	-	48	RU-OPTION	1/0	BX	RU	Normal
17	(TX DATA4)	1/0			-	49	PLL CLK	1/0(1)	Active	Active	
18	(TX DATA3)	1/0			-	50	PLL DATA	O(I)	Active	Active	Normal
19	(TX DATA2)	I/O			-	51	CHG. SHORT	1	Short	Normal	-
20	TX DATA (ID)	1/0			- `	52	ALARM	O(I)	Active	Active	Normal
21	RX MUTE	I/O	ON	OFF	-	53	M.CHG.CONTROL	1/0	-	Tricle	Ultra
22	PLL ST	1/0	Latch		-	54	SP LED	I/O	-	ON	OFF
23	Not Used	I/O		Fixed	-	55	IN USE LED	1/0		ON	OFF
24	ALM MUTE	1/0	ON	OFF	-	56	External Interrupt	1	Fixed	-	-
25	TX POW	1/0	- 1	ON	OFF	57	GND			Normal	-
26	RX POW	1/0	- 1	ON	OFF	58	Oscillator		Active	Active	-
27	Not Used	1/0	- 1	Fixed	- '	59	Oscillator	0	Active	Active	-
28	CLK-LOW	I/O	-	ON	OFF	60	Power Supply		Normal	-	-
29	FLS(20)	1/0	Low	High	-	61	External Interrupt		Fixed		-
30	RX DATA	1/0		J		62	DTMF	0	Active	Active	Normal
31	PLL UNLOCK	1/0		Unlock	-	63	RESET		Normal	Reset	-
32	T/P SW	1/0	Tone	Pulse	-	64	System Sync. Idle	0	Active	Active	-

CPU DATA (Portable Handset)

IC201 MN150837KD2

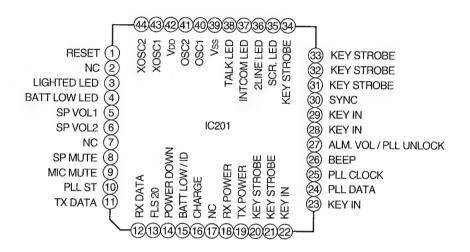
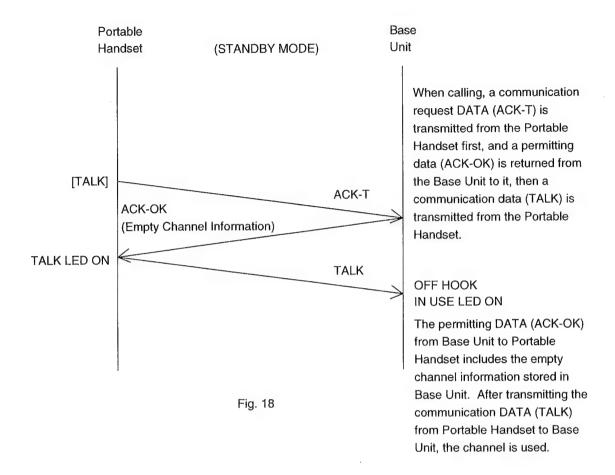


Fig.17

Din	Description	1 1/0				Τ	1			r	r
Pin	Description	1/0	High	Low	High-Z	Pin	Description	1/0	High	Low	High-Z
1	RESET	1/0		RESET		23	KEY IN	1		KEY IN	
2	Not Used	-				24	PLL DATA	1/0			
3	LIGHTED LED	1/0	ON	OFF		25	PLL CLOCK	1/0			
4	BATT.LOW LED	1/0	OFF	ON		26	BEEP	1/0			
5	SP VOL.1	1/0				27	ALM. VL/PLK UK	1/0	High/lock	Low/UNLOCK	
6	SP VOL.2	1/0				28	KEY IN	1		KEYIN	
7	Not Used	-				29	KEY IN	1		KEYIN	
8	SP MUTE	1/0	MUTE			30	Not Used	0	İ		
9	MIC MUTE	1/0	MUTE			31	KEY STROBE	0			
10	PLL ST	1/0				32	KEY STROBE	0			
11	TX DATA	1/0]		33	KEY STROBE	0			
12	RX DATA					34	KEY STROBE	0			
13	FLS20	1/0		Electric Field		35	SCR.LED	0		ON	OFF
14	POW DOWN	1/0		POWDOWN		36	2LINE LED	0		ON	OFF
15	ID/BAT.LOW	1/0		BAT.LOW		37	INT.LED	1/0		ON	OFF
16	CHARGE	1/0		CHARGE		38	TLK.LED	1/0		ON	OFF
17	Not Used	-				39	GND	-			
18	RX POW	1/0		ON	OFF	40	MAIN CLOCK	0			
19	TX POW	1/0		ON	OFF	41	MAIN CLOCK	1			
20	KEY STROBE	1/0				42	POWER SUPPLY	-			
21	KEY STROBE	1/0				43	SUB CLOCK	-			
22	KEY IN	1		KEY IN		44	SUB CLOCK	0			

EXPLANATION OF CPU DATA COMMUNICATION

1. Calling



2. To terminate

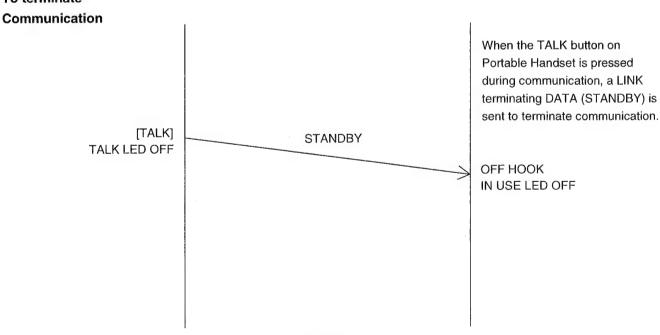
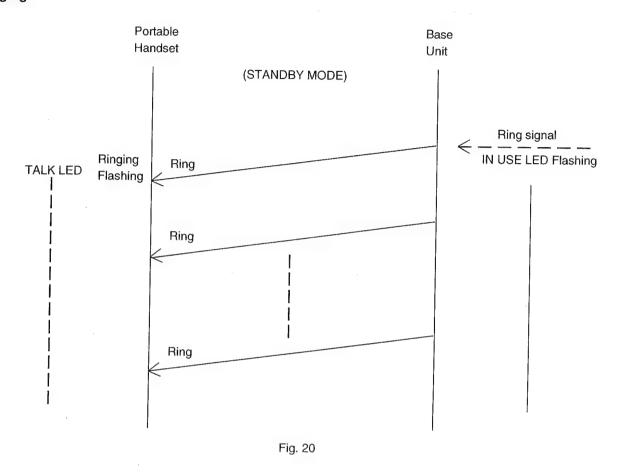


Fig. 19

3. Ringing



After detecting the Ring signal from circuit, Base Unit sends a ring signal DATA (Ring), then the Portable Handset starts ringing.

4. Ports for transmitting and receiving of data

Portable Handset: transmitting ... 11 Pin receiving ... 12 Pin

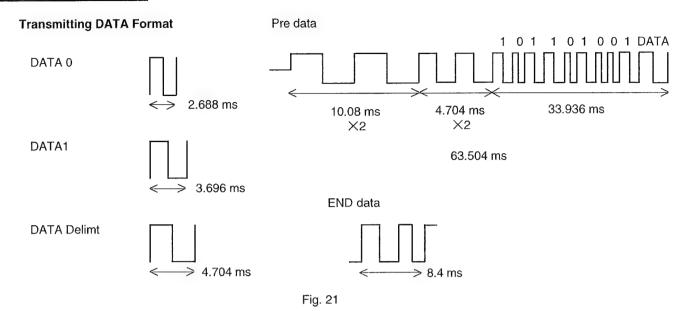
Base Unit: transmitting ... 20 Pin receiving ... 30 Pin

5. Waveform of DATA used for cordless transmission and reception

The DATA which is transmitted from the Portable Handset to the Base Unit is combination of DATA 0, DATA 1, DATA Delimt, Pre data and End data.

The DATA which is transmitted from the Base Unit to the Portable Handset is combination of DATA 0, DATA 1, DATA Delimt, Pre data and End data.

PORTABLE HANDSET



BASE UNIT

Transmitting DATA Format

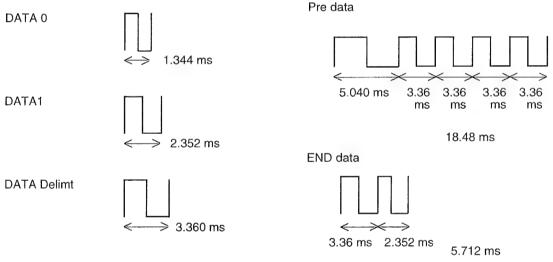


Fig. 22

6. When LINKing

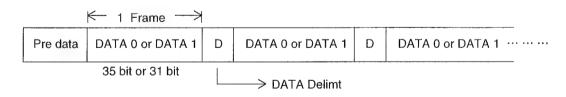


Fig. 23

When LINKing from the Portable Handset (when becoming STBY to TALK), DATA is transmitted in above format. The combined portion of DATA 0 and DATA 1 is transmitted in LINK requesting DATA (35bit) format first. Then, when LINK OK (ACK-OK) DATA (19bit) is returned from the Base Unit, it is sent as LINK from DATA after changing the combination of DATA 0 and DATA 1. And the DATA Delimt is between each Frame as a stop.

The contents of LINK requesting DATA and LINK form DATA are different depending on each operation.

7. Pulse Dial

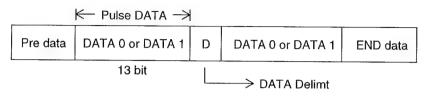
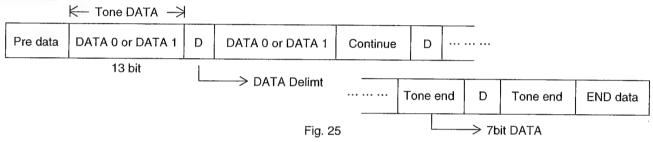


Fig. 24

When executing Pulse Dial, the Pulse Dial DATA is transmitted from the Portable Handset to the Base Unit in above format. The combination of DATA 0 and DATA 1 are changed by each Dial No. And the DATA Delimt is between each Frame as a stop. The number of Frame is 2.

8. Tone Dial



When executing Tone Dial, Tone Dial DATA is transmitted from the Portable Handset to the Base Unit in above format. The DATA is changed by Dial No. as same as Pulse Dial. When Tone Dialing, DATA (Continue DATA) that the key is pressed continuously is sent to the Base Unit during the key is pressed. When depressing the key, the TONE Dial exterminating DATA (Tone end DATA) is send, and the END data is sent finally.

NOTE

1,000,000 kinds of the security code are available for the model KX-TC911-B/KX-TC911-W. Each time the portable handset is set on the cradle of the base unit (for charging), the CPU automatically change the security code.

FREQUENCY TABLE (MHz)

CH	Base Unit TX	Base Unit RX	CH	Base Unit TX	Base Unit RX
	Portable Handset RX	Portable Handset TX		Portable Handset RX	Portable Handset TX
1	902.100 MHz	926.100 MHz	16	902.850 MHz	926.850 MHz
2	902.150 MHz	926.150 MHz	17	902.900 MHz	926.900 MHz
3	902.200 MHz	926.200 MHz	18	902.950 MHz	926.950 MHz
4	902.250 MHz	926.250 MHz	19	903.000 MHz	927.000 MHz
5	902.300 MHz	926.300 MHz	20	903.050 MHz	927.050 MHz
6	902.350 MHz	926.350 MHz	21	903.100 MHz	927.100 MHz
7	902.400 MHz	926.400 MHz	22	903.150 MHz	927.150 MHz
8	902.450 MHz	926.450 MHz	23	903.200 MHz	927.200 MHz
9	902.500 MHz	926.500 MHz	24	903.250 MHz	927.250 MHz
10	902.550 MHz	926.550 MHz	25	903.300 MHz	927.300 MHz
11	902.600 MHz	926.600 MHz	26	903.350 MHz	927.350 MHz
12	902.650 MHz	926.650 MHz	27	903.400 MHz	927.400 MHz
13	902.700 MHz	926.700 MHz	28	903.450 MHz	927.450 MHz
14	902.750 MHz	926.750 MHz	29	903.500 MHz	927.500 MHz
15	902.800 MHz	926.800 MHz	30	903.550 MHz	927.550 MHz

HOW TO REPLACE FLAT PACKAGE IC

PREPARATION

· SOLDER _ _ _ _ _ Sparkle Solder 115A-1, 115B-1
OR
Almit Solder KR-19, KR-19RMA

· Soldering iron – – – – Recommended power consumption will be between 30 W to 40 W. Temperature of Copper Rod 662 \pm 50 $^{\circ}$ F (350 \pm 10 $^{\circ}$ C)

(An expert may handle 60~80 W iron, but beginner might damage foil by overheating.)

· Flux - - - - - - - HI115 Specific gravity 0.863

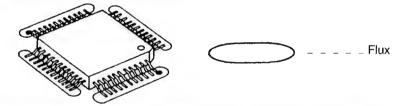
(Original flux will be replaced daily.)

■ PROCEDURE

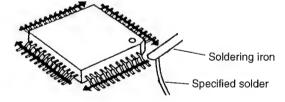
1. Temporary fix FLAT PACKAGE IC by soldering on two marked 2 pins.



- *Most important matter is accurate setting of IC to the corresponding soldering foil.
- 2. Apply flux for all pins of FLAT PACKAGE IC.

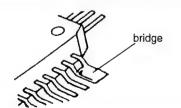


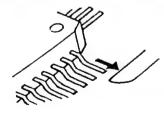
3. Solder employing specified solder to direction of arrow, as sliding the soldering iron.

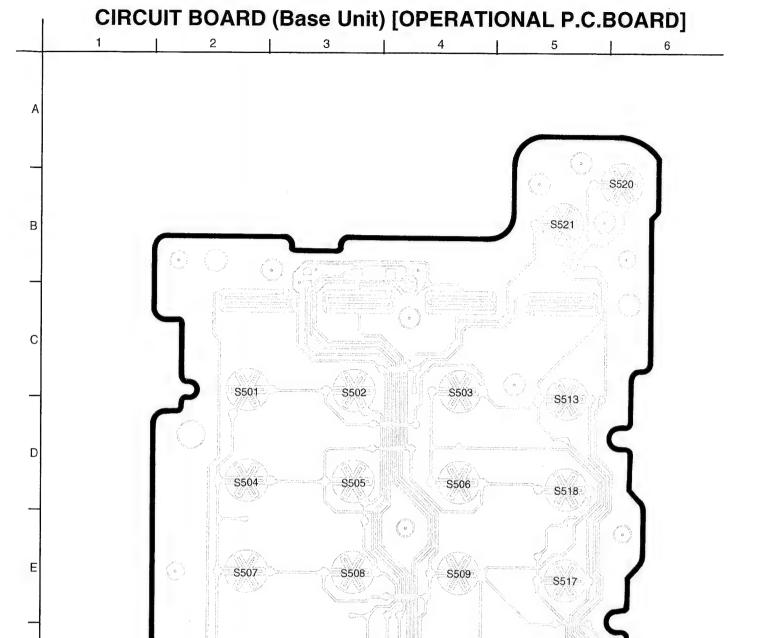


■ MODIFICATION PROCEDURE OF BRIDGE

- 1. Re-solder slightly on bridged portion.
- 2. Remove remained solder along pins employing soldering iron as shown in below figure.







S511

CN1

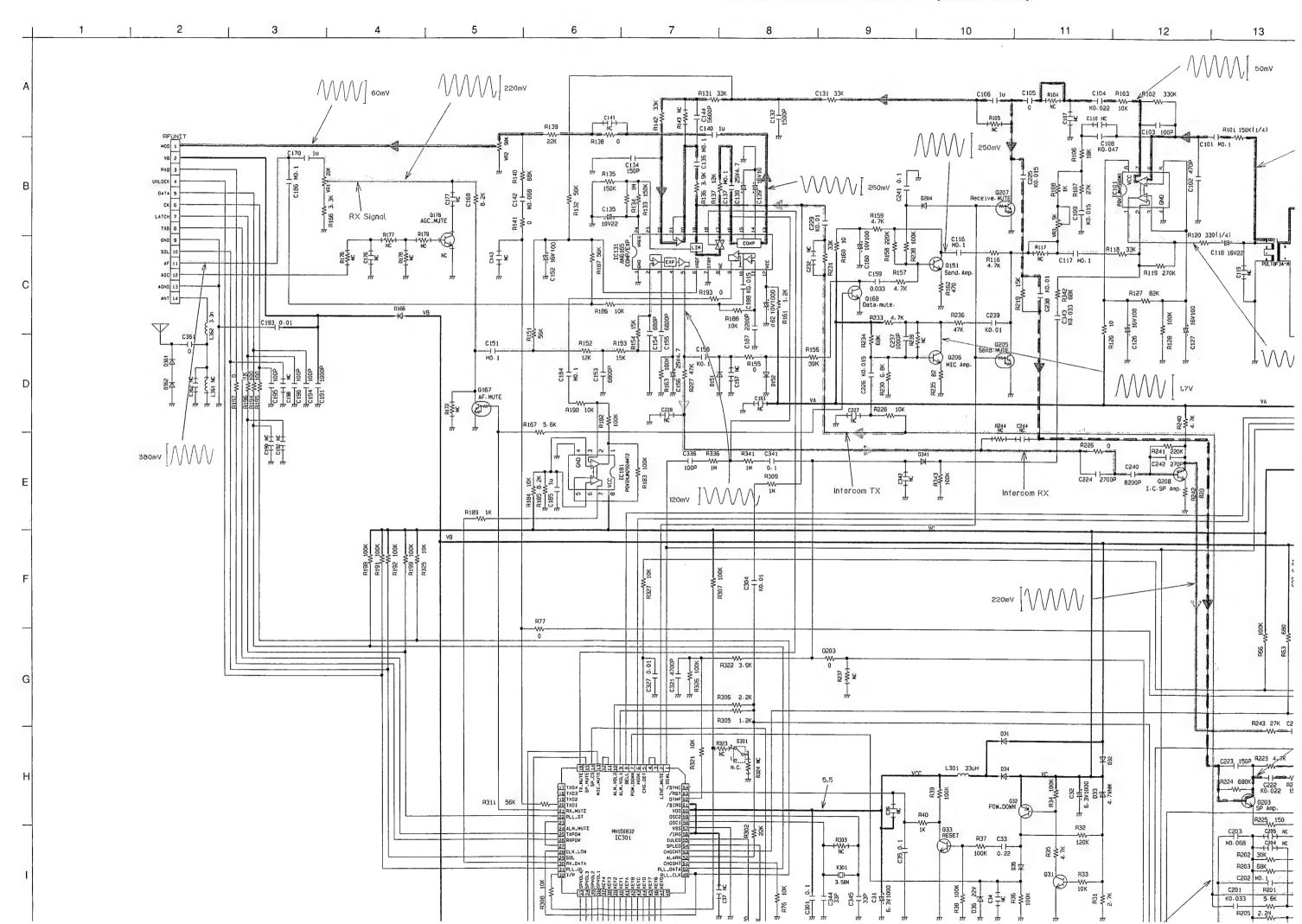
S512

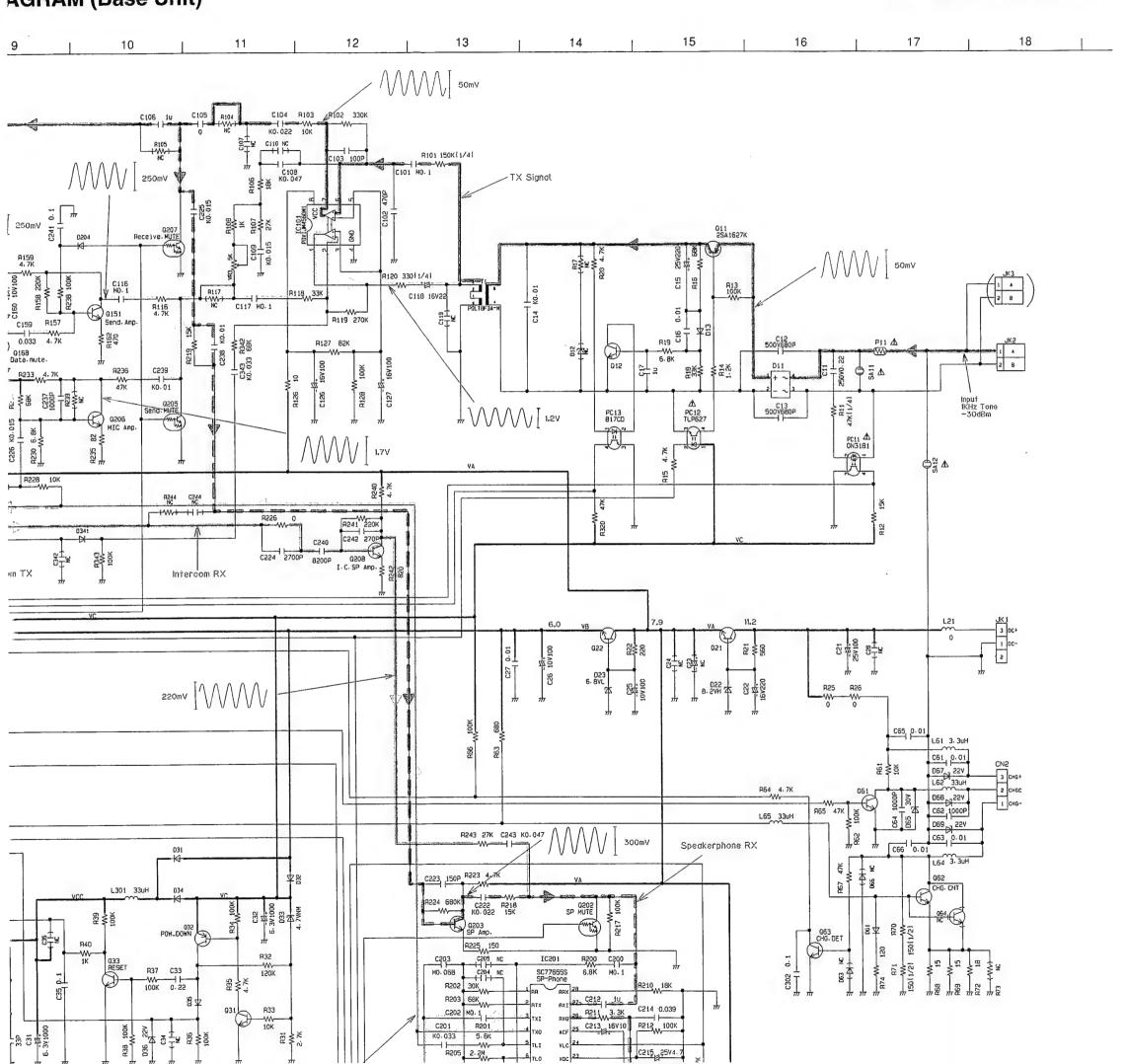
S519

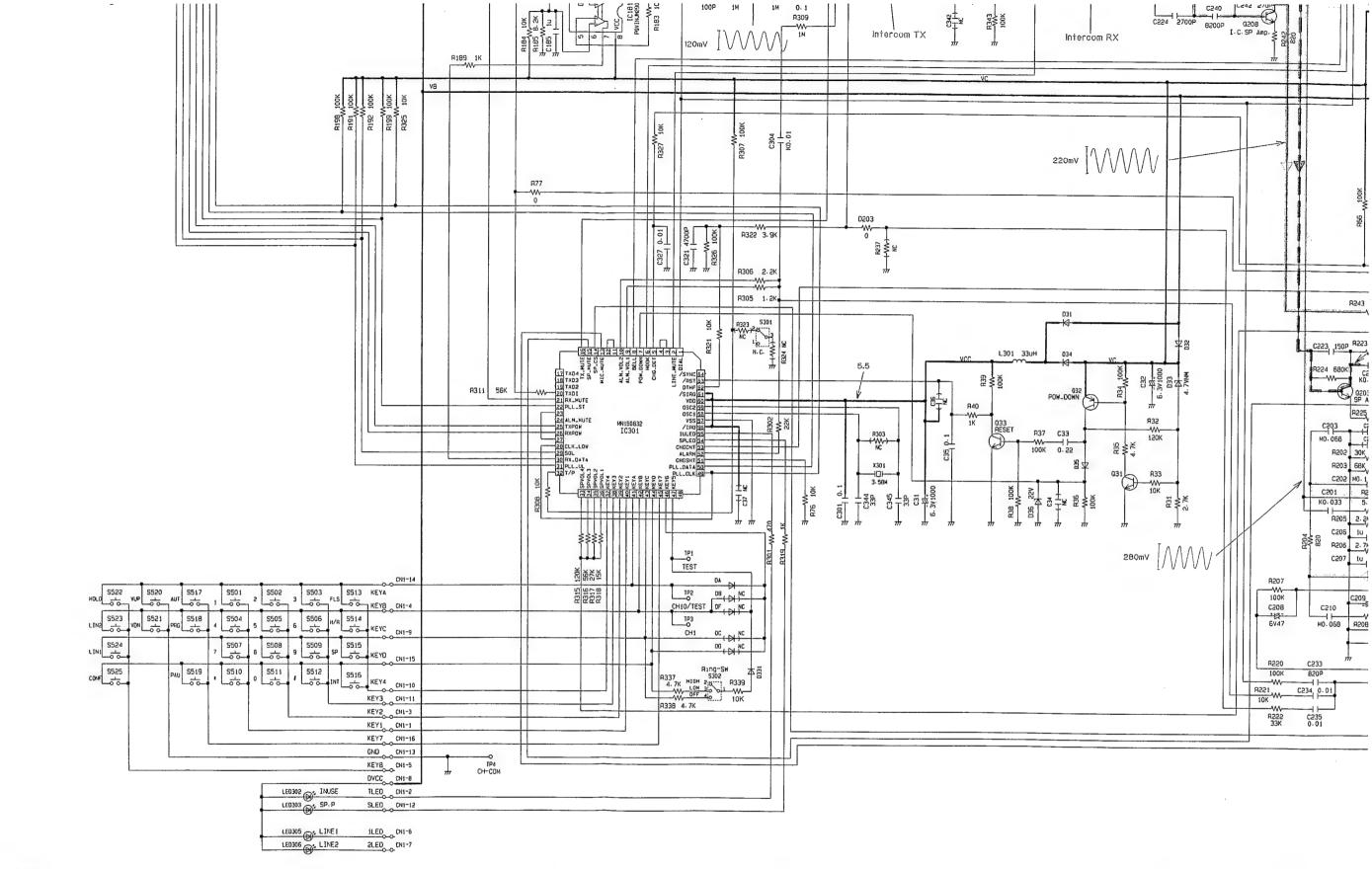
LED1

S510

SCHEMATIC DIAGRAM (Base Unit)







Notes:

M

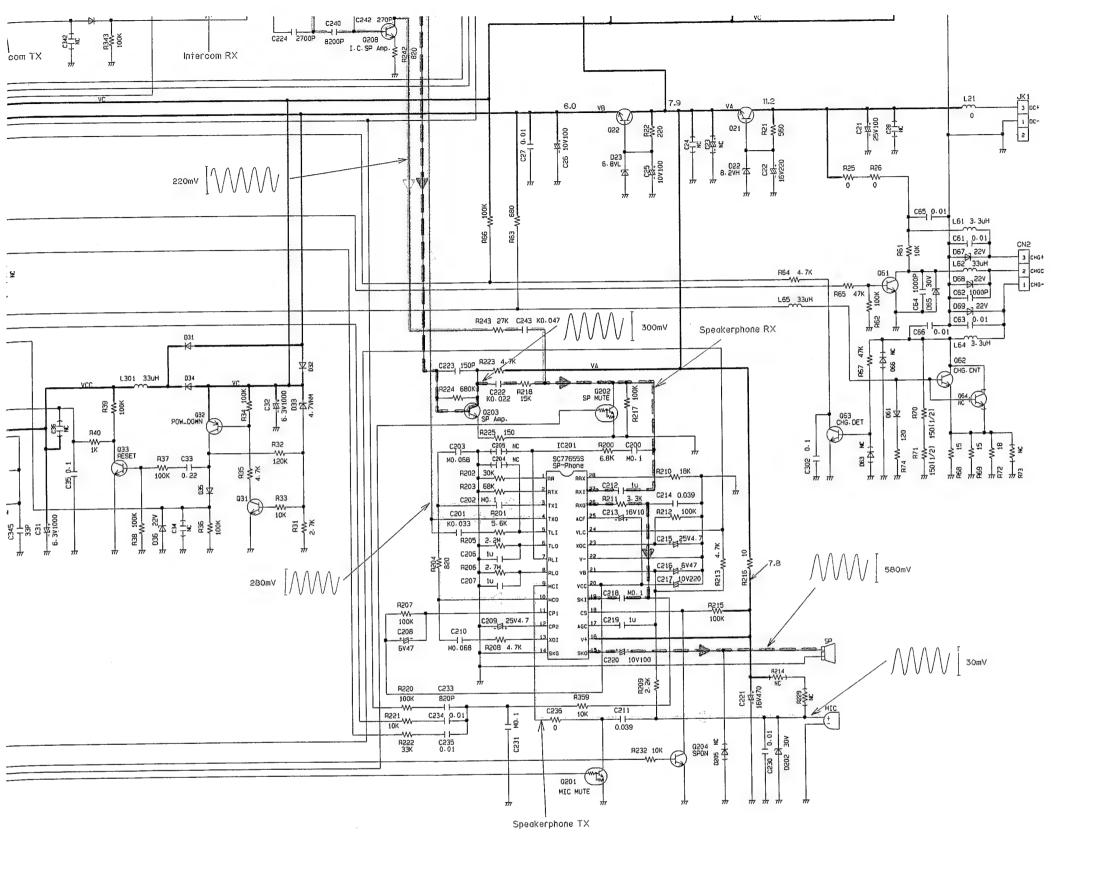
- 1. S302. Ringer Selector Switch
- 2. S501~509, 511, 512: Dialing Switch
- 3. S510: Tone Switch
- 4. S513: Flash Switch
- 5. S514: Hold Switch

- 6. S515: Speakerphone Switch
- 7. S516: Locator/Intercom Switch
- 8. S517: Auto Switch
- 9. S518: Program Switch10. S519: Redial/Pause Switch
- 11. S520: Volume (Up) Switch
- 12. S521: Volume (Down) Switch
- 13. DC voltage measurements are taken with voltmeter from the negative voltage line.

Important Safety Notice:

Components identified by \triangle mark have special characteristics impotant for safety. When replacing any of these components, use only manufacturer's specified parts.

This schematic diagram may be modified at any time with the development of new technology.



This schematic diagram may be modified at any time with the development of new technology.

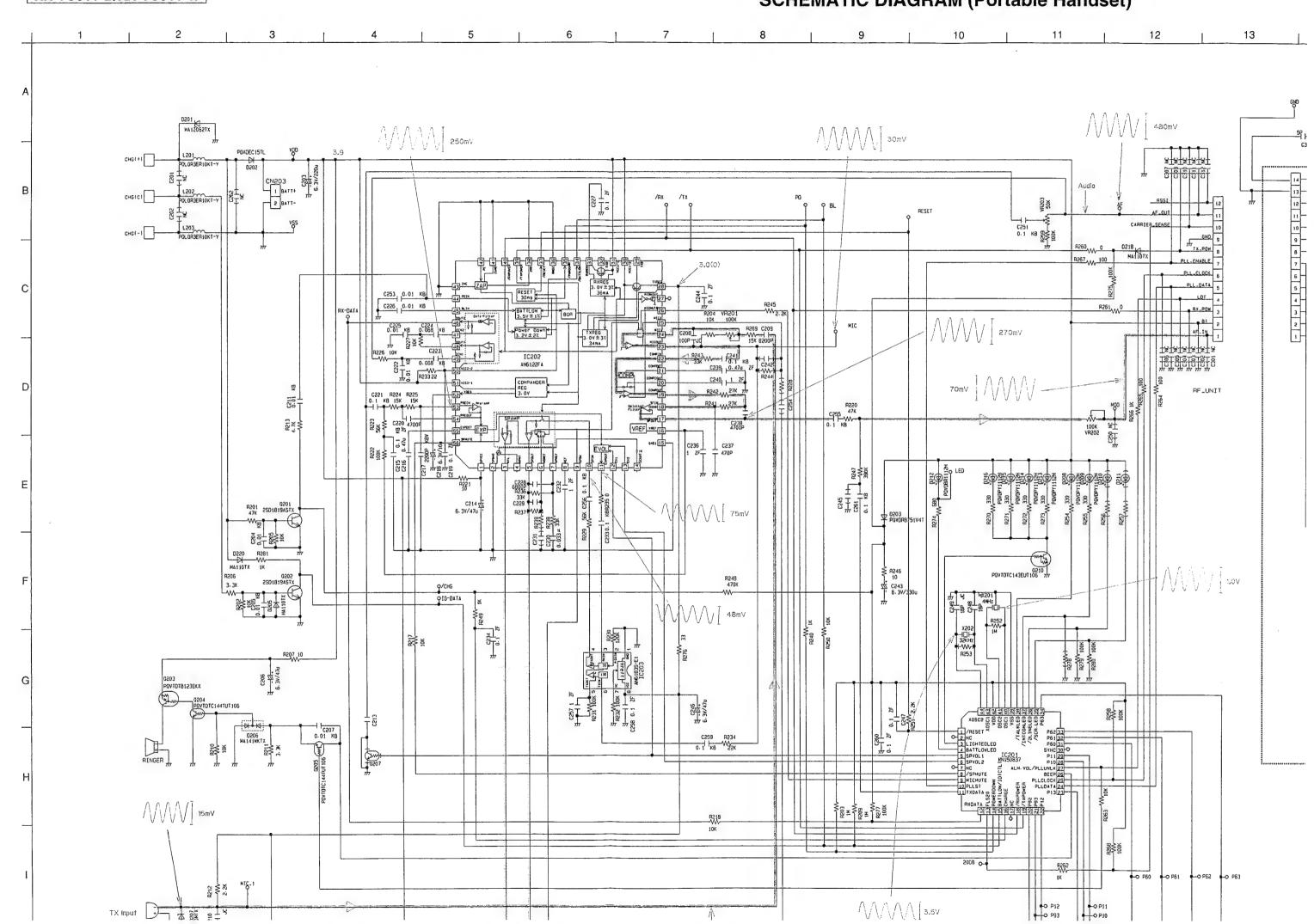
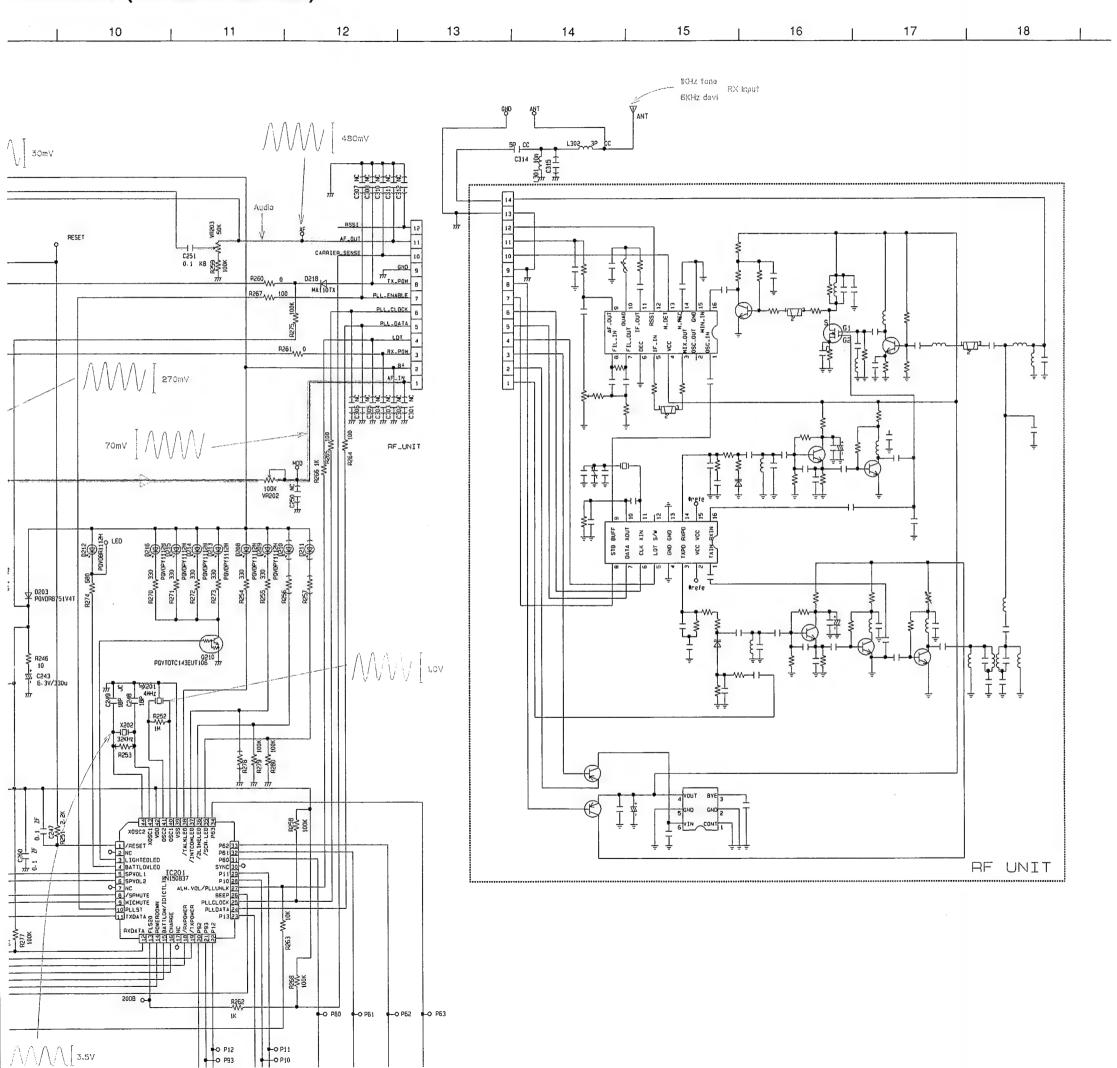
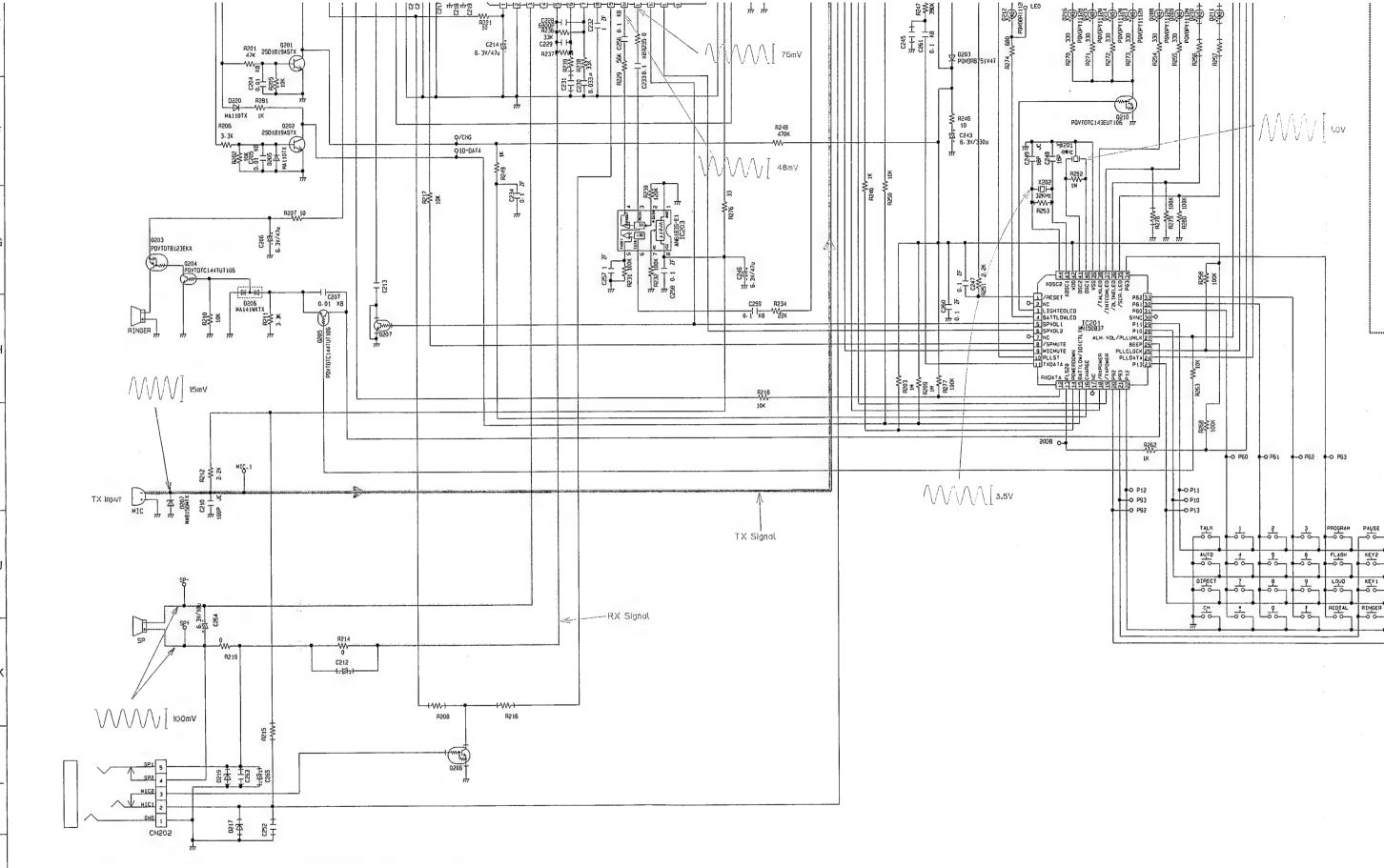


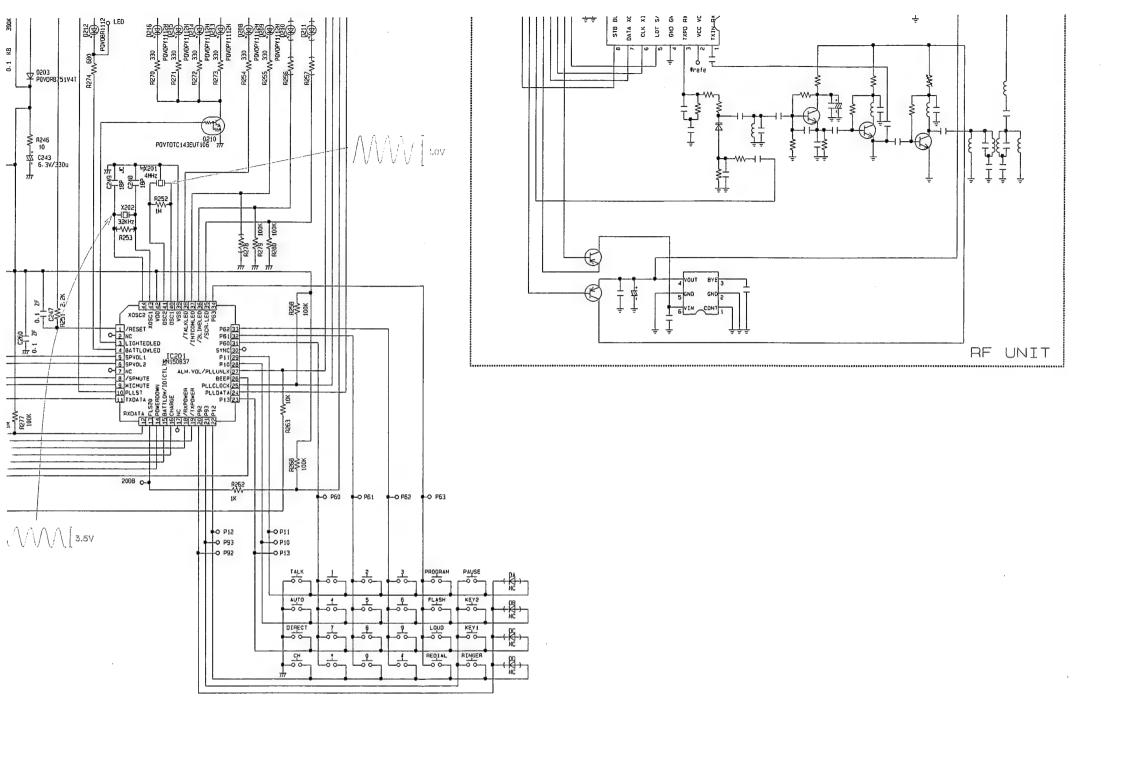
DIAGRAM (Portable Handset)





Notes

 DC voltage measurements are taken with voltmeter from the negative voltage line. This schematic diagram may be modified at any time with the development of new technology.



- 26 -

CIRCUIT BOARD (Portable Handset) 10 (Flow Solder Side View) L.201 IC201 C244 VR201 C209 22 C208 R269 22 R204 C258 R212 23 • R254 X201 • R255 C225 • C224 4 C222 • R233 • R227 C219 • R233 • C223 • C224 43 CHG(C) • R279 IC202 T C221 • R280 R242 •C239 R232 L202 •c220⁵⁶ R241 **√**R223 • D207 C217 • R222 C210 • CHG(-) C216 • Q201 C204 R205 L203

R201 R206 R206

Q202 C B D202

R281 R202 C205 C232 C256 (Component View) D209

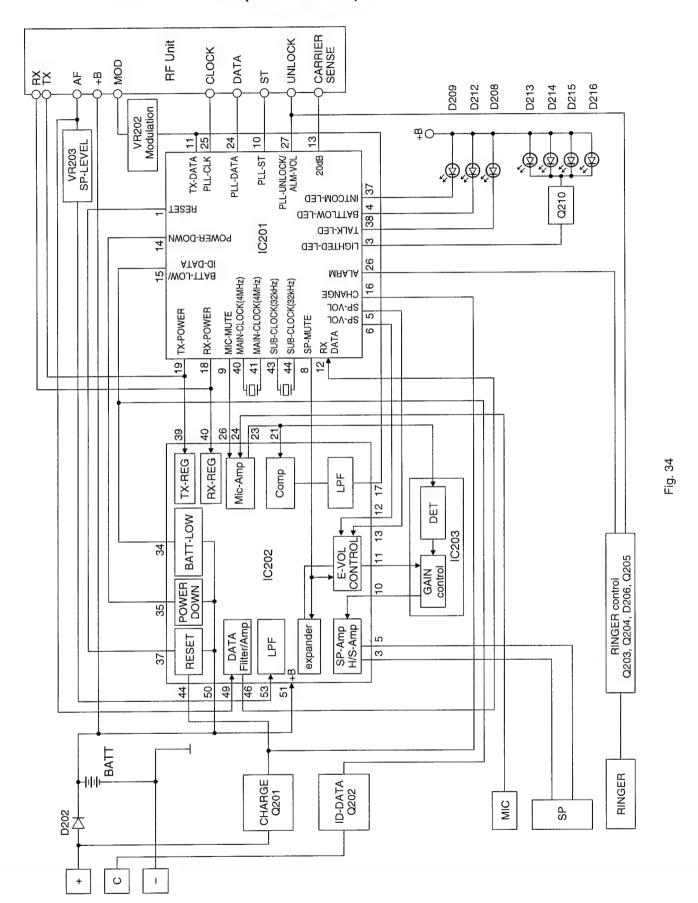
- 27 -

KX-TC911-B/KX-TC911-W

KX-TC911-B/KX-TC911-W

BLOCK DIAGRAM (Portable Handset)

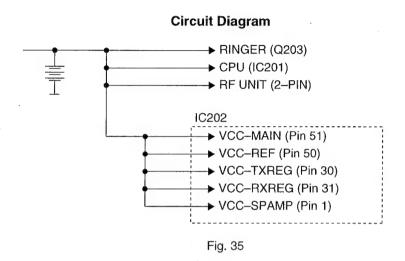
(Control Block)



NEW CIRCUIT OPERATION (Portabl Handset)

1. Power Supply Ciurcuit

As indicated in Fig.35, voltage is supplied separately to each block.



2. Data Reception Circuit

The wave detection signal from the RF UNIT has high frequency elements eliminated by a CR filter consisting of R226 and C222. Then it is amplified by DATA Amp1 and, once again, high frequency elements are eliminated by R227 and C226. After this, the signal is amplified by DATA Amp2 and input to pin ② of the CPU. The data output waveform is a block pulse.

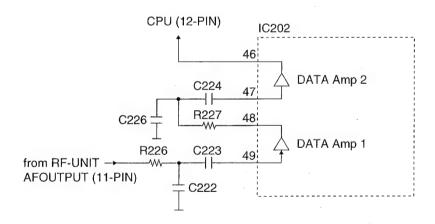


Fig. 36

3. Ringer Circuit

If the ringer volume is set to low and the key is entered occurs, an alarm tone is output from pin (a) of the CPU and input to Q205 and C207. Then Q205 is turned off. The ringer sound is decreased depending on the time constant of C207 and R211. If the ringer volume is set to high, Q205 turns on and results in a louder beep tone.

Circuit Diagram

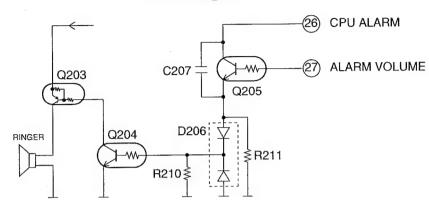


Fig. 37

4. Reception Signal Circuit

The receiver circuit comprises expander IC202, side tone control IC IC203.

After being adjusted to the appropriate level by VR203, the signal passes through a 3 kHz LPF and an expander built into IC202. It is then input to side tone IC IC208. The side tone IC is connected to the microphone amplifier. If a large input is input to the microphone, the gain control built into IC203 lowers the gain to reduce the output of the speaker amplifier. If there is no large input being input to the microphone, the amplifier in IC203 is set to standard gain. Consequently, the sound of the received audio signal becomes fainter when the user is talking in a loud voice and the side tone level is lowered. When the user talks more softly, the received audio signal is audible at the standard level.

RX VOL	EV1 12 pin	EV2 ① pin
+7dB	Н	L
0dB	L	Н
-7dB	L	L

SP MUTE H: SPEAKER OFF

L: SPEAKER ON

Circuit Diagram

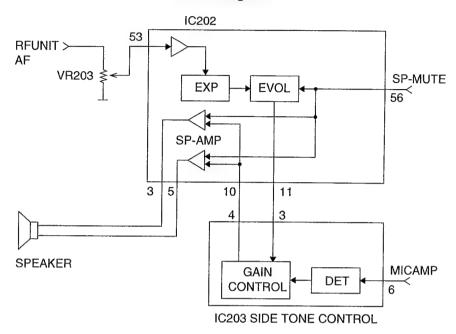
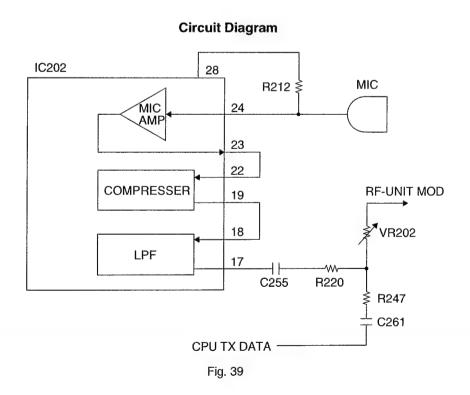


Fig. 38

5. Sending Signal

The audio signal from the microphone is amplified by Mic Amp, compander, and 3 kHz LPF built into IC202. It is then mixed with the TX DATA signal from the CPU, the modulation is adjusted by VR202, and input to the modulator in the RF UNIT.



6. Reset/Power Down/Battery Low/ID

When the battery is installed in the portable handset, the reset circuit consisting of R213, C211, and inside IC202 functions, inputting a reset signal to the CPU. This ensures that the unit will operate normally without the user's needing to switch the power off and on. When the voltage from the batteries drops to 3.5 V, 3.5 V voltage detector inside IC202 operates and inputs a battery low signal to the CPU. This causes the battery low LED to turn on. If voltage continues to drop and reaches 3.2 V, 3.2 V voltage detector inside IC202 operates and outputs a power down signal to the CPU. This causes power to be cut off automatically and prevents the battery from over discharging. Q201 is a charge detector that informs the CPU whether or not the portable handset is currently being charged. During charging, ID data is sent from the base unit. Q202 receives this ID data and sends it to the CPU.

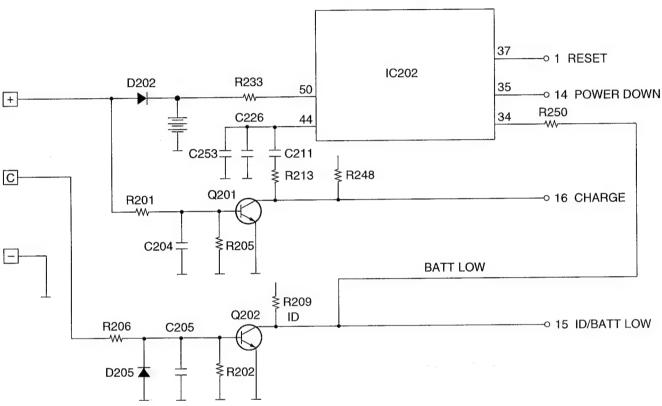
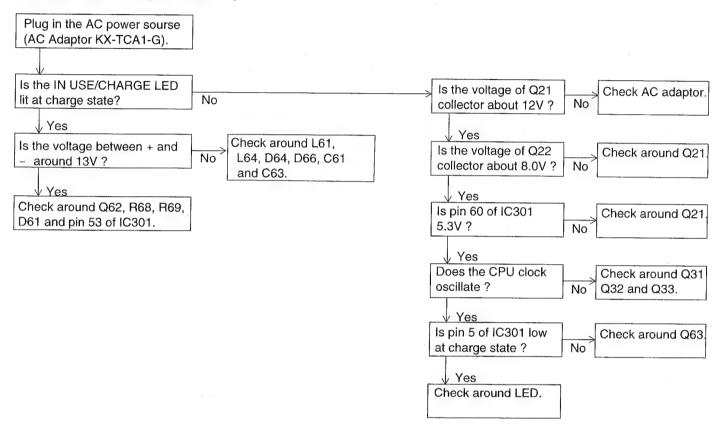


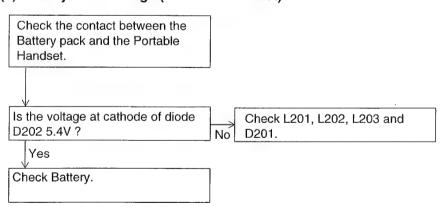
Fig. 40

TROUBLESHOOTING GUIDE

(1) Battery won't charge (Base unit)



(2) Battery won't charge (Portable Handset)

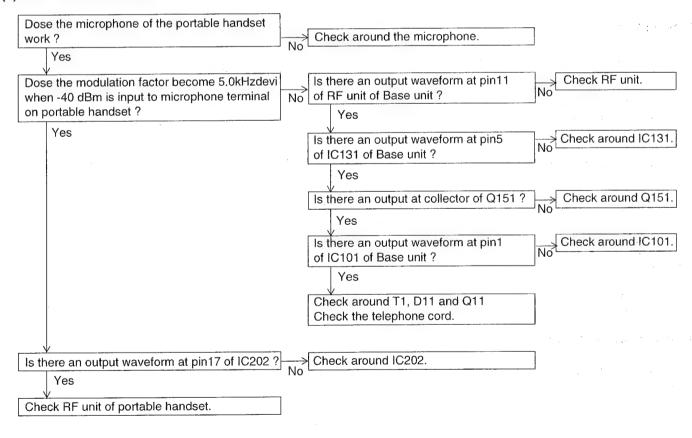


(3) No voice reception

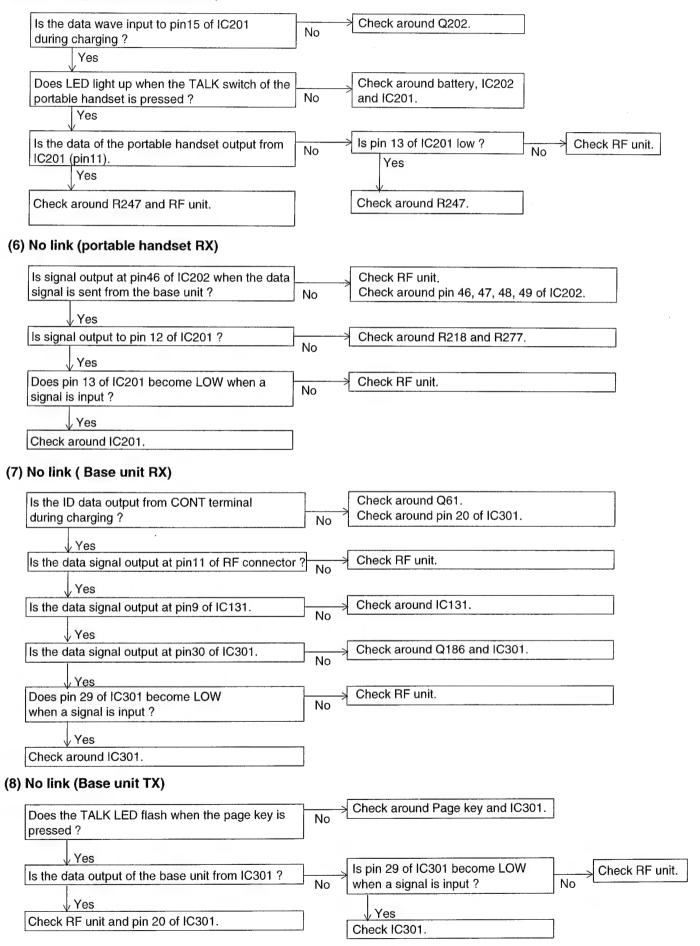
BASE UNIT PORTABLE HANDSET Dose the modulation factor become 8.0kHzdevi Yes when -30dBm is input to the baseunit? Is there an output waveform at pin 54 of IC202? No Yes No Is there an output waveform at pin 7 of IC101? Check RF unit and VR203. Yes Check around IC101 Is there an output waveform at pin 3 of IC202? Yes Is there an output waveform at pin 13 of IC131? Check around IC202 and Yes IC203. Check around IC131. Check SPEAKER. Check RF unit (Base unit).

Note: When checking the RF UNIT, refer to pages 15 and 16.

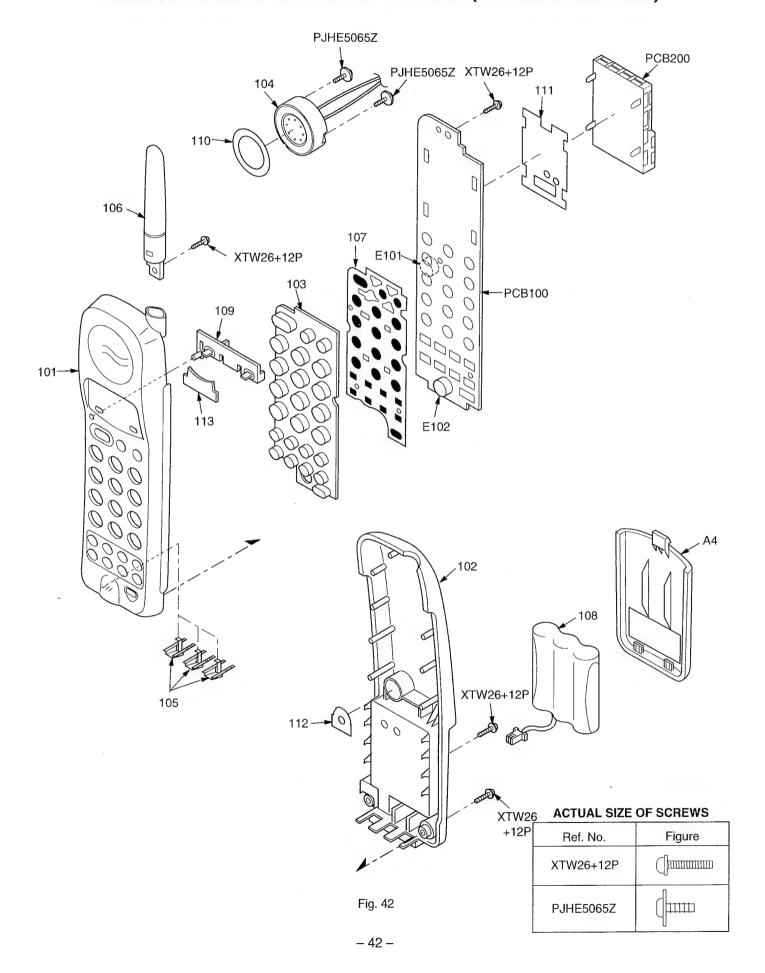
(4) No voice transmission



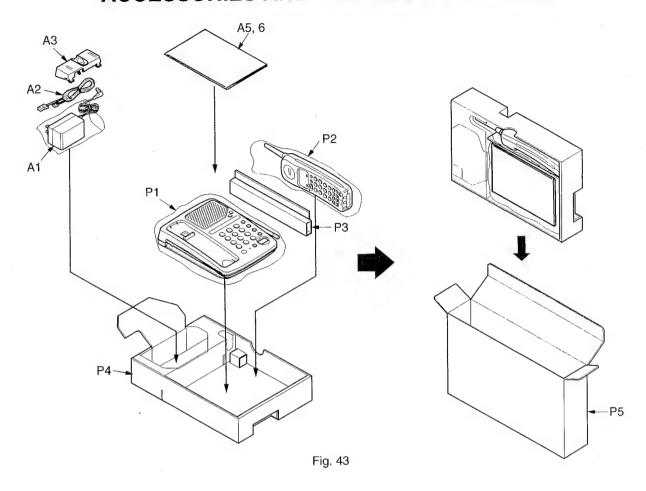
(5) No link (portable handset TX)



CABINET AND ELECTRICAL PARTS (Portable Handset)



ACCESSORIES AND PACKING MATERIALS



TOOL

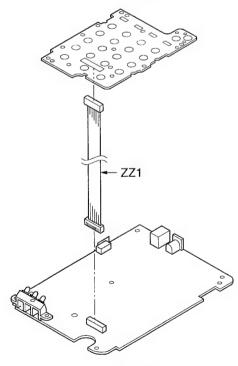


Fig. 44

This replacement parts list is U.S.A. version only. Refer to the simplified manual (cover) for other areas.

	RI	PLACE	MEN	T P	ARTS	L	ST	
Note:				E	Base L	<u>Jnit</u>		
	atantic	on Time Limite	۸۱					
		(RTL) indicate		Dotonti	Ti !	11 14		••
After to be a is dependent of the depend	he disc availab endent ing pac he end	continuation of le for a specifi on the type of t and product of this period, ety notice.	this asse c period of assembly retention.	mbly in of time. T y, and in	productior he retenti accordan	n, the on pe ce wit	item will riod of av h the law	continue /ailability
Compo safety.	nents Wher	identified by a	a ∆ mar of these	k specia compon	l characte ents, use	ristics only n	importan nanufactu	t for urer's
specific 3. The S i	ed part mark ir	s. ndicates servic	e standard	d parts a	ind may d	iffer fr	om produ	ıction
parts.								
		& CAPACITOR	is .					
		vise specified. re in ohms (Ω	\ K_1000	O M 40	001/0			
All cana	citors	are in MICRO	FADADO	12, IVI=10	00KΩ			
*Type 8	&Watta	ge of Resistor	ו אוואטט	(µr / r=	- μμι-			
Type		90 01 110010101						
ERC:Sol	lid	ERX:Metal	Film	PQ4R:0	Carbon			7
ERD:Car	bon	ERG:Metal	l Oxide		sible Res	istor		
PQRD:C	arbon	ER0:Metal	Film	ERF:Ce	ement Res	istor		
Wattag								
10,16:1/8		14,25:1/4V		1/2W	1:1\	W	2:2W	3:3W
	Voltag	e of Capacitor						
Туре								
ECFD:Se		nductor			CBT,PQC			
ECQS:St					CQG : Pol			l l
PQCUV:					Electrolytic	С		
ECQMS: Voltage			ECQP :	Polypro	ppylene			
ECQ Typ		ECQG	IECC7 T	i un a				
ECQV Type								
411 5017		05: 50V	0F:3.15		:6.3V	- 1	1V :3	51/
1H: 50V			44					
2A:100V		1:100V	1A:10V	1			50,1H:5	0V
2A:100V 2E:250V			1V:35V	10	:16V		1J :63	0V 3V
2A:100V		1:100V		10				0V 3V
2A:100V 2E:250V		1:100V	1V:35V	10	:16V		1J :63	0V 3V

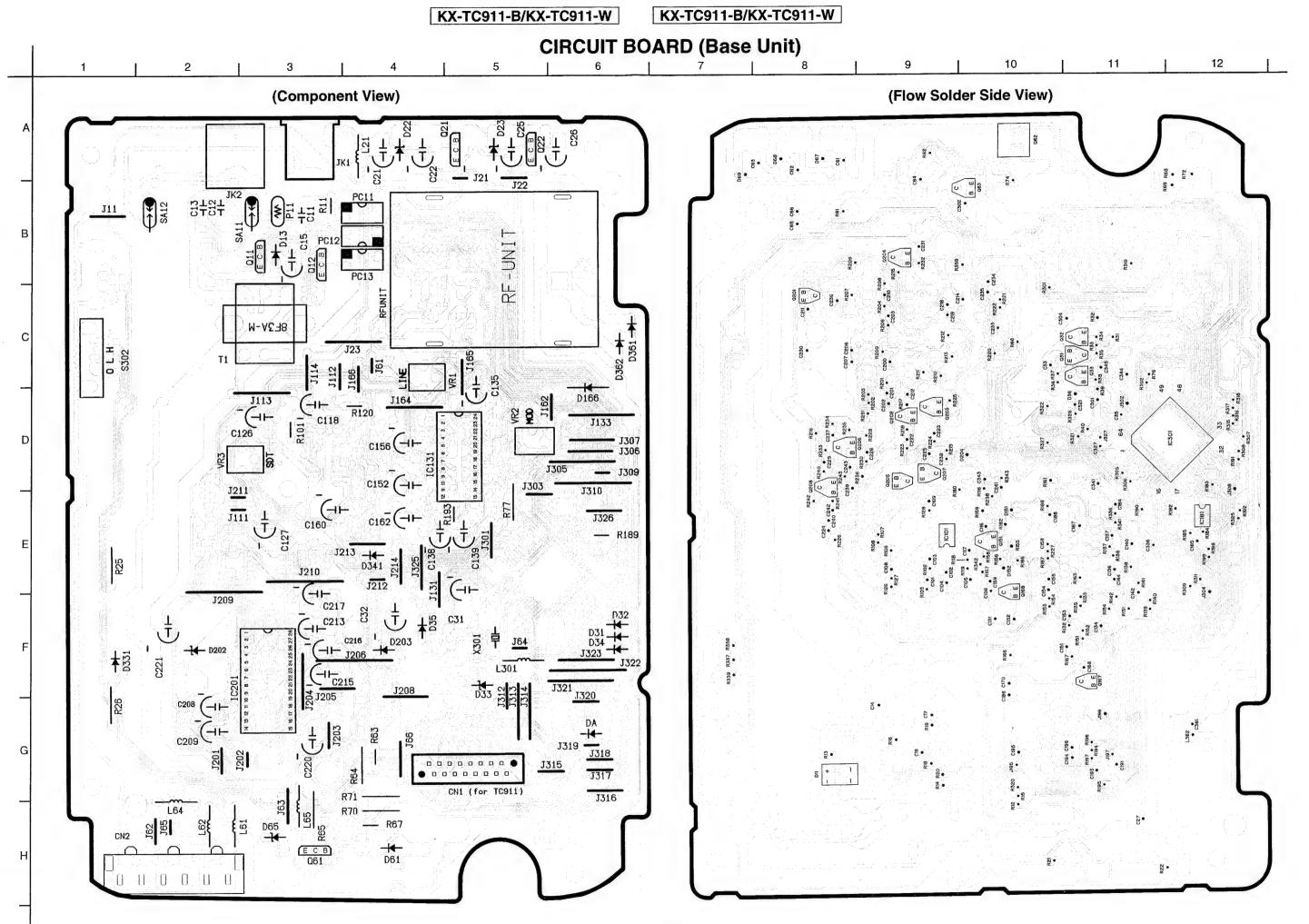
				D22
Ref. No.	Part No.	Part Name & Description	Pcs/Set	D23
				D31
		CABINET AND ELECTRICAL PARTS		D32
	DOM HOOS 171			D33
1 1	PQKM10324Z1	UPPER CABINET (for Black Version)	1	D34
	PQKM10324Z2	UPPER CABINET (for White Version)	1	D35
2	PQYF10126J1	LOWER CABINET (for Black Version)	1	D36
2	PQYF10126J3	LOWER CABINET (for White Version)	1	D61
3	PQYT10010Z1	KEY BUTTON (for Black Version)	1	D65
3 4	PQYT10010Z2	KEY BUTTON (for White Version)	1 1	D67
	PQSA10047Z	ANTENNA	1 1	D68
5 6	PQSX10075Z	KEY SWITCH	1 1	D69
7	PQSX10077Z	KEY SWITCH	1	D151
7	PQBX10303Z	BUTTON (for Black Version)	1	D152
8	PQBX10303Y PQGT13230Z	BUTTON (for White Version)	1	D166
8		NAME PLARE (for Black Version)	1	D202
9	PQGT13231Z PQKE10072Z1	NAME PLARE (for White Version)	1 1	D204
9	PQKE10072Z1	HOOK (for Black Version)]	D331
10	PQAS65P37Z	HOOK (for White Version)	1	D341
10	PQAS05P37Z	SPEAKER	1	D361
]		D362
				DA
				1
				1
				L61
				L62
				L64
				L65
		1		L301
				L362

Color Part	_	Ref. No.	0-411-	David and		_
PCB1		Hei. No.	Ραπ Νο.	· ·	Pcs/Se	≱t —
C101		PCB1	PQWP1TC911BH	P.C.BOARD ASS'Y (RTL)	1	
C101				(ICS)		
		1 1		ic		
		IC181	PQVINJM2904F	IC	1	
C11				i		
Q11						
O12		Q11	2SA1627			
Q22		11	2SC1740S	TRANSISTOR(SI)	1	
Q31		11				١
Q32		1 1		` '		1
Q61		1 1				ı
Q62						١
C683						ı
Q167				TRANSISTOR(SI)		ı
Q168 2SD1819A TRANSISTOR(SI) 1	1	1				l
Q201	١					l
Q203	1			TRANSISTOR(SI)		l
Q204	١			. ,	- 1	١
Q205	١					ı
Q207	ı	1		TRANSISTOR(SI)		l
Q208 2SD601R	ı			` '	1	
D11		Q208		` '		
D11				(DIODES)		
D22	l	1	PQVDS1ZB40F1	DIODE(SI)	1	l
D23	J	ı	l			
D31	1	1	1			
D33	1		1		1	
D34	l	1			1	
D35	1					
D61	l			DIODE(SI)		
D65	l					
D68						
D69						
D151						
D166		D151	PQVDRB751V4	DIODE(SI)	1	
D202 MA4300 DIODE(SI) 1 D204 MA110 DIODE(SI) 1 D331 1SS119 DIODE(SI) 1 D341 1SS119 DIODE(SI) 1 D361 1SS119 DIODE(SI) 1 D362 1SS119 DIODE(SI) 1 DA 1SS119 DIODE(SI) 1 DIODE(SI) 1 DA 1SS119 DIODE(SI) 1 D	l					
D204 MA110 DIODE(SI) 1	П				: 1	
D341	П			DIODE(SI)		
D361	П			1 ' '		
DA	Н		li .	l ' '		
(COILS AND TRANSFORMERS) L61 PQLQZK3R3K COIL 1 L62 PQLQZK330KT COIL 1 L64 PQLQZK3R3K COIL 1 L65 PQLQZK330KT COIL 1 L301 PQLQZK330KT COIL 1	П					
L61 PQLQZK3R3K COIL 1 L62 PQLQZK330KT COIL 1 L64 PQLQZK3R3K COIL 1 L65 PQLQZK330KT COIL 1 L301 PQLQZK330KT COIL 1		UΑ	1155119	DIODE(SI)		
L62 PQLQZK330KT COIL 1 L64 PQLQZK3R3K COIL 1 L65 PQLQZK330KT COIL 1 L301 PQLQZK330KT COIL 1				,		
L64 PQLQZK3R3K COIL 1 L65 PQLQZK330KT COIL 1 L301 PQLQZK330KT COIL 1						
L301 PQLQZK330KT COIL 1				3		
TERRE TECHNISTRATE TOUR	1	L301 L362	PQLQZK330KT PQLQR2M3N3K	COIL COIL	1 1	

Ref. No.	Part No.	Part Name & Description	n	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
T1	PQLT8F3A	TRANSFORMER	Δ	1	R67	ERDS2TJ473	47K	1
					R68	PQ4R10XJ150	15	1
		-1			R69	PQ4R10XJ150	15	1
		(VARIABLE RESISTORS)			R70	ERDS1TJ151	150	1
VR1	EVNDXAA03B24	VARIABLE RESISTOR		1	R71	ERDS1TJ151	150	1
VR2	EVNDXAA03B54	VARIABLE RESISTOR		1 1	R72	PQ4R10XJ180	18	1
VR3	EVNDXAA03B53	VARIABLE RESISTOR		1	R74	ERJ3GEYJ121	120	1
					R76	ERJ3GEYJ103	10K	1
		İ			R101	ERDS2TJ154	150K	1
		(SWITCH)			R102	ERJ3GEYJ334	330K	1
S302	PQSS3A17W	SWITCH		1 1	R103	ERJ3GEYJ103	10K	1
					R106	ERJ3GEYJ183	18K	1
					R107	ERJ3GEYJ273	27K	1
		(VARISTORS)			R108	ERJ3GEYJ102	1K	1
SA11	PQVDDSS301L	VARISTOR	Æ	1	R116	ERJ3GEYJ472	4.7K	1 1
SA12	PQVDDSP272MR	VARISTOR	ΔŶ	1 1	R118	ERJ3GEYJ333	33K	1
					R119	ERJ3GEYJ274	270K	1 1
		1			R120	ERDS2TJ331	330	1
		(CRYSTAL OSCILLATOR)		l . I	R126	ERJ3GEYJ100	10	1
X301	PQVBKBR3.58M	CRYSTAL OSCILLATOR		1	R127	ERJ3GEYJ823	82K	1
					R128	ERJ3GEYJ104	100K	1
	}				R131	ERJ3GEYJ333	33K	1
		(POSISTOR)		1 , 1	R132	ERJ3GEYJ563	56K	1 1
P11	PQRPAR390N	THERMISTOR	ı S	1	R133	ERJ3GEYJ154	150K	
					R134	ERJ3GEYJ105	1M	
4		(DUGTO COLUDI EDG)		1	R135	ERJ3GEYJ154	150K	
DO44	DOV #DOOFOE4 D	(PHOTO COUPLERS)	A 0		R136	ERJ3GEYJ392	3.9K	1 1
PC11	PQVIPS25051P PQVITLP627	PHOTO COUPLER	A∆S A∆		R137 R138	ERJ3GEYJ123	12K 0	1 1
PC12		PHOTO COUPLER	217	1 1		ERJ3GEY0R00	22K	
PC13	PQVIPC817CD	PHOTO COUPLER		'	R139 R140	ERJ3GEYJ223	68K	
					R140	ERJ3GEYJ683 ERJ3GEY0R00	0	
		(JACKS)		1 1	R142	ERJ3GEYJ333	33K	
JK1	PQJJ1T022Z	JACK, DC IN		1	R151	ERJ3GEYJ563	56K	1
JK2	PQJJ1T008Y	JACK, TEL			R152	ERJ3GEYJ123	12K	1 1
JNZ	PQ33110061	JACK, TEL		'	R153	ERJ3GEYJ153	15K	
		,			R154	ERJ3GEYJ153	15K	
		(ELECTRICAL PARTS)			R155	PQ4R18XJ000	0	
E1	PQJM122Z	MICROPHONE		1	R156	ERJ3GEYJ393	39K	1
E2	PQMG10020Z	SPACER			R157	ERJ3GEYJ472	4.7K	1 1
E3	PQJT10147Y	CHARGE TERMINAL		1 1	R158	ERJ3GEYJ224	220K	1 1
CN1	PQJP16B66Z	CONNECTOR		1 1	R159	PQ4R10XJ472	4.7K	1
					R160	ERJ3GEYJ100	10	1
				lli	R161	PQ4R10XJ122	1.2K	1 1
		(RESISTORS)			R162	PQ4R10XJ471	470	1
R11	ERD\$2TJ473	47K		1	R163	ERJ3GEYJ104	100K	1
R12	ERJ3GEYJ153	15K		1	R166	ERJ3GEYJ332	3.3K	1
R13	PQ4R10XJ104	100K		1	R167	ERJ3GEYJ562	5.6K	1
R14	PQ4R10XJ122	1.2K		1	R182	ERJ3GEYJ104	100K	1
R15	ERJ3GEYJ472	4.7K		1	R183	ERJ3GEYJ104	100K	1
R16	PQ4R10XJ683	68K		1	R184	ERJ3GEYJ103	10K	1
R18	PQ4R10XJ333	33K		1	R185	ERJ3GEYJ822	8.2K	1
R19	PQ4R10XJ682	6.8K		1	R186	ERJ3GEYJ103	10K	1
R20	PQ4R10XJ472	4.7K		1	R187	ERJ3GEYJ563	56K	1
R21	ERJ3GEYJ561	560		1	R188	ERJ3GEYJ103	10K	1
R22	ERJ3GEYJ221	220		1	R189	ERDS2TJ102	1K	1
R31	ERJ3GEYJ272	2.7K		1	R190	ERJ3GEYJ103	10K	1
R32	PQ4R10XJ124	120K		1	R191	ERJ3GEYJ104	100K	1
R33	ERJ3GEYJ103	10K		1	R192	ERJ3GEYJ104	100K	1
R34	ERJ3GEYJ104	100K		1	R194	ERJ3GEYJ101	100	1
R35	ERJ3GEYJ472	4.7K		1	R195	ERJ3GEYJ101	100	1
R36	ERJ3GEYJ104	100K		1	R196	ERJ3GEYJ102	1K	1
R37	ERJ3GEYJ104	100K		1	R197	ERJ3GEY0R00	0	1
R38	ERJ3GEYJ104	100K		1	R198	ERJ3GEYJ104	100K	1
R39	PQ4R10XJ104	100K		1	R199	ERJ3GEYJ104	100K	1
R40	ERJ3GEYJ102	1K		1	R200	ERJ3GEYJ682	6.8K	1
₹61	ERJ3GEYJ103	10K		1	R201	ERJ3GEYJ562	5.6K	1
R62	ERJ3GEYJ104	100K		1	R202	ERJ3GEYJ303	30K	1
R63	ERDS2TJ681	680		1	R203	ERJ3GEYJ683	68K	1
₹64	ERD25TJ472	4.7K		1	R204	ERJ3GEYJ821	820	1
₹65	ERD25TJ473	47K		1	R205	ERJ3GEYJ225	2.2M	1
₹66	ERJ3GEYJ104	100K		1	R206	ERJ3GEYJ275	2.7M	1

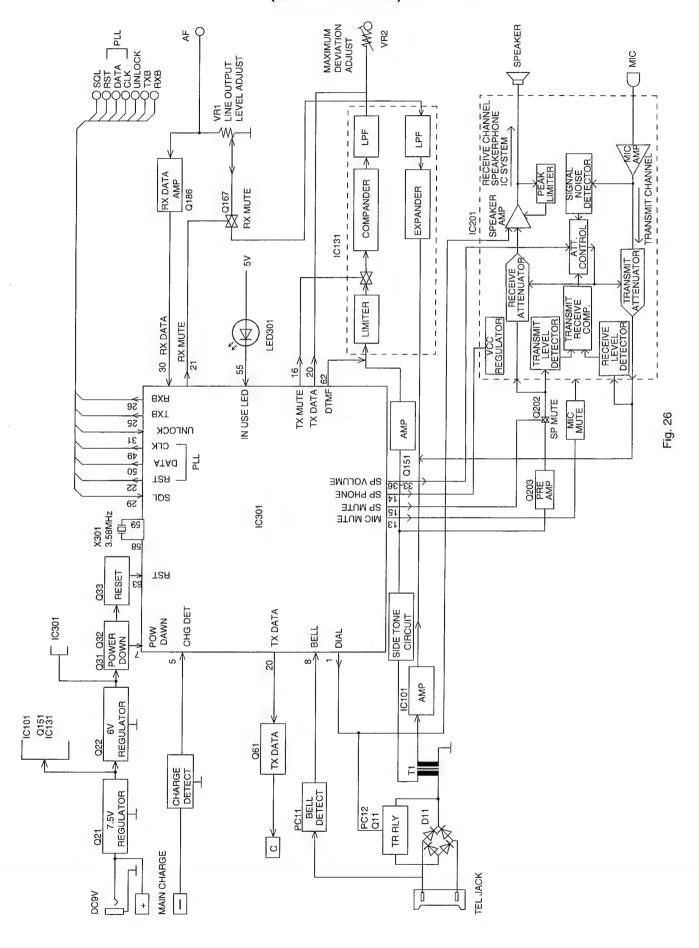
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Part Name & Description		Pcs/Set
R207	ERJ3GEYJ104	100K	1			(CAPACITORS)		
R208	ERJ3GEYJ472	4.7K	1	C11	ECQE2224KF	0.22		1
R209 R210	ERJ3GEYJ222	2.2K	1	C12	ECKD2H681KB	680P	S	1
R211	ERJ3GEYJ183 ERJ3GEYJ332	18K 3.3K	1 1	C13 C14	ECKD2H681KB PQCUV1H103KB	680P	S	1
R212	ERJ3GEYJ104	100K	¦	C14 C15	ECEA1EU221	0.01 220		1
R213	ERJ3GEYJ472	4.7K	¦	C16	PQCUV1H103ZF	0.01		1
R215	ERJ3GEYJ104	100K		C17	PQCUV1C105ZF	1	- 1	1
R216	ERJ3GEYJ100	10		C21	ECEA1EU101	100		1
R217	ERJ3GEYJ104	100K		C22	ECEA1CU221	220	- 1	1
R218	ERJ3GEYJ153	15K		C25	ECEA1AU101	100		1
R219	ERJ3GEYJ153	15K		C25	ECEA1AU101	100		1
R220	ERJ3GEYJ104	100K		C27	PQCUV1H103ZF	0.01		1
R221	ERJ3GEYJ103	10K	lil	C31	ECEA0JU102	1000	- [1
R222	ERJ3GEYJ333	33K	1 1	C32	ECEA0JU102	1000	- 1	1
R223	ERJ3GEYJ472	4.7K	1 1	C33	PQCUV1C224ZF	0.22	- 1	1
R224	ERJ3GEYJ684	680K	1	C34	ECUV1C104ZFV	0.1		1
R225	ERJ3GEYJ151	150	1	C35	ECUV1C104ZFV	0.1		1
R226	ERJ3GEY0R00	o	1	C37	ECUV1C104ZFV	0.1	- 1	1
R227	ERJ3GEYJ473	47K	1	C61	PQCUV1H103ZF	0.01		1
R228	ERJ3GEYJ103	10K	1	C62	PQCUV1H102J	0.001	S	1
R230	ERJ3GEYJ682	6.8K	1	C63	PQCUV1H103ZF	0.01		. 1
R231	ERJ3GEYJ333	33K	1	C64	PQCUV1H102J	0.001	S	1
R232	ERJ3GEYJ103	10K	1	C65	PQCUV1H103ZF	0.01	- 1	1
	ERJ3GEYJ472	4.7K	1	C66	PQCUV1H103ZF	0.01		1
	ERJ3GEYJ683	68K	1	C101	PQCUV1E104MD	0.1		1
	ERJ3GEYJ820	82	1	C102	PQCUV1H471JC	470P	S	1
	PQ4R10XJ473	47K	1	C103	PQCUV1H101JC	100P	ı	1
	ERJ3GEYJ104	100K	1	C104	PQCUV1H223KB	0.022	ı	1
	ERJ3GEYJ472 ERJ3GEYJ224	4.7K 220K	1 1	C106 C108	ECUV1A105ZFV PQCUV1E473MD	0.047	s	1
		820 820	1	C108	PQCUV1E473MD PQCUV1H153KB	0.015	9	1
	ERJ3GEYJ273	27K	1	C109	PQCUV1E104MD	0.1		1
	ERJ3GEYJ471	470	i	C117	PQCUV1E104MD	0.1		1
	ERJ3GEYJ223	22K	1 1	C118	ECEA1HU220	22	s	1
	ERJ3GEYJ122	1.2K	i I	C126	ECEA1CK101	100	s	1
	ERJ3GEYJ222	2.2K	1	C127	ECEA1CK101	100	s	1
	ERJ3GEYJ104	100K	1	C131	PQ4R10XJ333	33K		1
	ERJ3GEYJ103	10K	1	C132	PQCUV1H152KB	0.0015		1
R309	ERJ3GEYJ105	1M	1	C134	PQCUV1H151JC	150P		1
R311	ERJ3GEYJ563	56K	1	C135	ECEA1CKS220	22	S	1
R315	ERJ3GEYJ124	120K	1	C136	PQCUV1E104MD	0.1		1
	ERJ3GEYJ563	56K	1	C137	PQCUV1E104MD	0.1		1
		27K	1	C138	ECEA1VKS4R7	4.7	S	1
1	ERJ3GEYJ153	15K	1	C139	ECEA1CKS100	10	S	1
	ERJ3GEYJ102	1K	1	C140	PQCUV1C105ZF	[1		1
		47K	1	C142	PQCUV1C683MD	0.068		1
	ERJ3GEYJ103	10K	1	C144	PQCUV1H562KB	0.0056	- 1	1
	ERJ3GEYJ392	3.9K	1	C151	PQCUV1E104MD ECEA1AU101	0.1 100		1
	ERJ3GEYJ103 ERJ3GEYJ104	10K	1 1	C152 C153	PQCUV1H472KB	0.0047	S	1
	ERJ3GEYJ103	100K 10K	1	C154	PQCUV1H681JC	680P	s	1
		1M	i I	C155	PQCUV1H682KB	0.0068	ĭ	1
		4.7K	i I	C156	ECEA1VKS4R7	4.7	s	1
		4.7K	- i	C158	ECUV1C104KBV	0.1		1
		10K	1	C159	PQCUV1E333MD	0.033	s	1
		1M	1	C160	ECEA1AU101	100	- [1
		68K	1	C162	ECEA1AU102	1000	- [1
	ERJ3GEYJ104	100K	1	C168	PQ4R10XJ822	8.2K	-	1
R359	ERJ3GEYJ103	10K	1	C170	PQCUV1C105ZF	1		1
J195	ERJ3GEY0R00	0	1	C184	PQCUV1E104MD	0.1	-	1
J196	PQ4R18XJ000	0	1	C185	PQCUV1C105ZF	1		1
J197	ERJ3GEY0R00	0	1 -	C186	PQCUV1E104MD	0.1		1
J302		0	1	C187	PQCUV1H222KB	0.0022		1
J304		0	1	C188	PQCUV1H153KB	0.015	[]	1
J308	**	0	1	C191	PQCUV1H102J	0.001	S	1
		0	1	C193	PQCUV1H103ZF	0.01]]
		0	1	C194	PQCUV1H101JC	100P		1
		0	1	C195	PQCUV1H101JC	100P		1
C105	PQ4R10XJ000	0	1	C196	PQCUV1H101JC	100P		1
		 	ŀ	C200	PQCUV1E104MD	0.1		1
				C201	PQCUV1E333MD	0.033	S	1

PQCUV1E104MD	0.1	1
PQCUV1C683MD	0.068	1
PQCUV1C105ZF	1	1
PQCUV1C105ZF	1	1
ECEA0JKS470	47	1
ECEA1VKS4R7	4.7	3 1
	0.068	1
	0.039	3 1
	1	1
		3 1
	0.039	3 1
	0.000	3 1
	1	1
	i .	1
	1	1 1
		1
	1	s 1
	1.**	1
		1
		1
		1
		1 1
PQCUV1H153KB	1	1 1
PQCUV1H472KB	0.0047	1
PQCUV1H103ZF	0.01	1
PQCUV1E104MD	0.1	1
PQCUV1H222KB	0.0022	1
ECUV1H821KBV	820P	1
	0.01	1
1		1
		S 1
	0.00	1
		1
		1 1
		s i
	• • • • • • • • • • • • • • • • • • • •	
		1
		S 1
PQCUV1E104MD		S 1
PQCUV1E104MD	0.1	S 1
PQCUV1H103KB	0.01	1
PQCUV1H472KB	0.0047	1
ECUV1H103KBV	0.01	1
ECUV1H101JCV	100P	1
PQCUV1E104MD	0.1	S 1
1	0.033	S 1
1		1
POCUV1H330JC	l e	1
1 400 1 1100000		
0	PERATIONAL P.C.BOARD PARTS	
IDOWDOT CO11BH	ID C BOARD ASSIV (BTL)	1 1
PQWF21C911BI1	1.0.00011010110111111111111111111111111	
	(LEDS)	
PQVDPY1112H	LED	1
PQVDBR1112H	LED	1
	(CONNECTOR)	
PQJS16B15Z	CONNECTOR	1
	RF UNIT PARTS	
PQLZ10002Z	P.C.BOARD ASS'Y (RTL)	1
	PQCUV1C683MD PQCUV1C105ZF PQCUV1C105ZF ECEAOJKS470 ECEATVKS4R7 PQCUV1C683MD PQCUV1H393KB PQCUV1C105ZF ECEATCKS100 PQCUV1H393KB ECEATVKS4R7 ECEAOJKS470 ECEATOMAD PQCUV1E104MD PQCUV1E104MD PQCUV1E104MD PQCUV1H331JC PQCUV1H331JC PQCUV1H331JC PQCUV1H331JC PQCUV1H103ZF	PQCUV1C105ZF 1 PQCUV1C105ZF 2 ECEAJKS470 47 ECEA1VKS4R7 4.7 PQCUV1C105ZF 1 PQCUV1C105ZF 1 ECEAIVKS4R7 4.7 PQCUV1C105ZF 1 ECEAICKS100 10 PQCUV1H393KB 0.039 ECEA1VKS4R7 4.7 ECEAJKS470 47 ECEAJKS470 47 ECEAJKS470 47 ECEAJKS470 47 ECEAJKS470 47 ECEAJKS470 10 PQCUV1E104MD 0.1 PQCUV1E104MD 0.1 PQCUV1H331JC 330P PQCUV1H331JC 9QCUV1H22KB 0.0015 PQCUV1H103ZF 0.01 PQCUV1H03ZF 0.01 PQCUV1H103ZF 0.01 PQCUV1H103XB 0.01 PQCUV1H103XB 0.01 PQCUV1H103XB 0.01 PQCUV1H103XB 0.01 PQCUV1H103XB 0.01 PQCUV1E104MD 0.1 PQCUV1E104MD 0.1 PQCUV1H103KB 0.01 PQCUV1H30JC 33P PQCUV1H330JC 33P OPERATIONAL P.C.BOARD PARTS PQWP2TC911BH P.C.BOARD ASS'Y (RTL) (LEDS) PQJS16B15Z CONNECTOR



BLOCK DIAGRAM (Base Unit)

(Main P.C. Board)

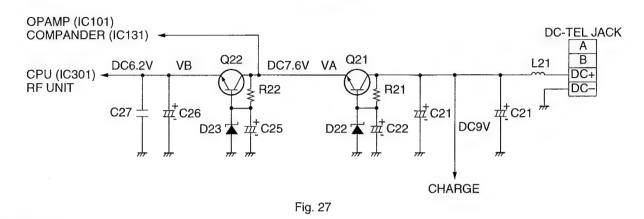


NEW CIRCUIT OPERATION (Base Unit)

1. Power Supply Circuit

As indicated in the illustration, the various voltages are supplied constantly to their respective blocks the power supply terminals of the CPU (IC301) are Q22. A time constant is used to compensate for momentary dropouts in the AC power supply.

Circuit Diagram



2. Charge Circuit

The voltage from the AC is supplied to the main charge circuits. Ultra charge (150 mA) of maximum 4 hours is started soon after the portable handset is placed on the base unit. Then it changes to normal charge (60 mA on the average) of 10 hours. Finally the mode changes to trickle charge (18 mA) to prevent overcharging.

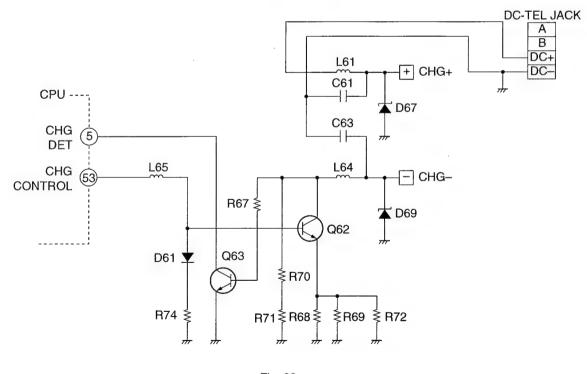


Fig. 28

3. Bell Detector Circuit

When the Bell signal is input between T/R, the signal of which waveform is shaped through R11→C11→PC11 is input to pin [®] of the CPU IC301.

When the CPU detects the Bell signal, pin (59) repeats High/Low fluctuation and then IN USE LED LED301 in use is flashed.

At this time, if the portable unit is charged, the data from pin @ is sent through the control terminal and then the portable unit's ringer is on.

If the portable unit is not charged, the data signal generated by pins @ of the CPU is sent to the portable unit through RF and then the portable unit's ringer is on.

4. Line Interface

In talk status, the DIAL output from pin ① of IC301 changes to low level, causing PC12 and Q11 to turn on and resulting in a line loop. The loop current flows from D11 (+)→Q11→R17, in that order. A pulse signal that repeated switches between high and low level is output from pin ① of the CPU. This switches the line loop on and off, generating the dial pulse signal.

5. DTMF Signal

When the DTMF data from the portable unit is received, the DTMF signal is output from pin @ of the CPU and sent to the line through Q151, IC101.

6. Line Sending Signal

The AF signal output from the AF terminal of the RF unit is adjusted to the appropriate level by VR1, input to IC131. The RX DATA signal from the portable handset is muted at this point by Q167 to prevent the RX DATA from leaking onto the line. In this way the noise is suppressed. IC131 comprises a 3 kHz LPF and an expander IC. The signal compressed by the portable handset is expanded, recreating it as a normal signal. The output from the expander passes through amplifier Q151 and amplifier IC101 before being input to line transformer T1.

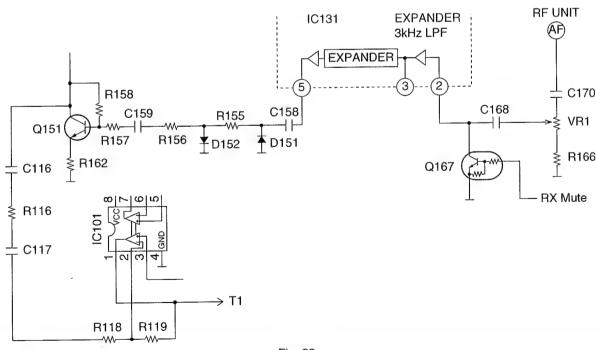


Fig. 29

7. Line Receiving Signal

The audio signal from line transformer T1 is amplified by IC101 and input to IC131. IC131 comprises an amplifier, limiter, mute circuit, compander, and 3 kHz LPF. It performs signal processing. The audio signal output from pin (3) of IC131 is mixed with the DTMF, TX DATA, and DIAL signals. At this point (in the talk mode), the DTMF tones, pulse dial tones, and data transferred between the portable handset and base unit is input to the modulator circuit.

Circuit Diagram

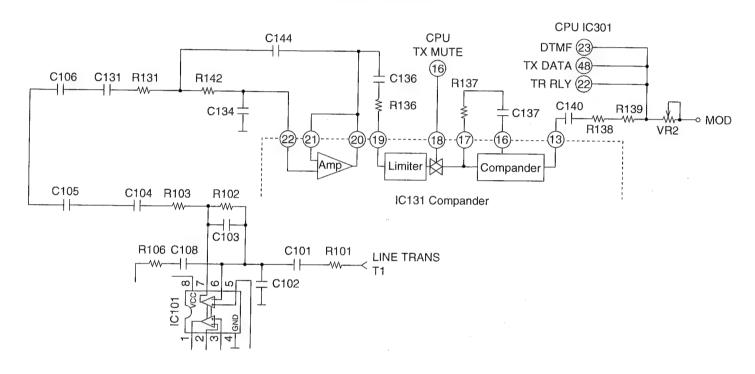


Fig. 30

8. RX Data Circuit

The resulting demodulated data waveform is then input to RX DATA pin ③ of the CPU. If there is data from the portable handset during talk operation, the portable handset data is as shown below to prevent the data from leaking onto the line.

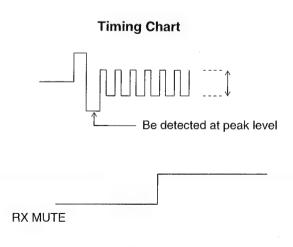
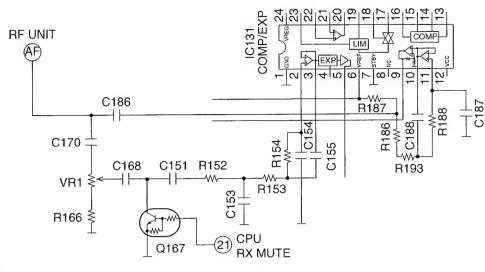


Fig. 31

Circuit Diagram



9. ID code setting

Fig. 32

When the portable handset is placed on the base unit, the charge detector operates and ID data is output from pin @ of the CPU. After passing through data amplifier Q61 and the charge terminal, the data is sent to the portable handset.

10. Speakerphone Circuit

Function:

This circuit controls the automatic switching of the transmitted and received signals, to and from the telephone line, when the unit is used in the hands-free mode.

Circuit Operation:

The speakerphone can only provide a one-way communication path.

In other words, it can either transmit an outgoing signal or receive an incoming signal at a given time, but cannot do both simultaneously. Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.

This switching circuit is contained in IC201 and consists of a Voice Detector, Tx Attenuator, Rx Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the Tx (transmit) or the Rx (receive) signal is louder, and then it processes the signals such that the louder signal is given precedence.

The Voice Detector provides a DC input to the Attenuator Control corresponding to the Tx signal.

The Comparator receives a Tx and a Rx signal, and supplies a DC input to the Attenuator Control corresponding to the Rx signal. The Attenuator Control provides a control signal to the Tx and the Rx Attenuator to switch the appropriate signals on and off. The Attenuator Control also detects the level of the volume control to automatically adjust for changing ambient conditions.

1) Transmission Signal Path

The input signal from the microphone is sent through the circuit via the following path:

• Mic → Pin 9 of IC201 → Pin 27 of IC201 → Pin 3 of IC201 → Pin 4 of IC201 → Telephone Line.

2) Reception signal Path

Signals receive from the telephone line are outputted at the speaker via the following path:

Telephone Line → Pin 27 of IC201 → Pin 26 of IC201 → Pin 19 of IC201 → Pin 15 of IC201 → Speaker.

3) Control Signal Path:

Control signals for transmission and reception are inputted to IC201 via the following path: (Transmission Control Signal Path)

• Mic \rightarrow Pin 9 of IC201 \rightarrow Pin 10 of IC201 \rightarrow R204 \rightarrow C202 \rightarrow Pin 3 of IC201 \rightarrow Pin 4 of IC201 \rightarrow C201 \rightarrow R201 \rightarrow Pin 4 of IC201.

(Reception Control Signal Path)

• Telephone Line → Q203 → Q202 → C200 → R200 → Pin 7 of IC201.

4) Transmission/Reception Switching

The comparison result between Tx and Rx outputs as a DC level of IC201 of Pin 25.

Tx level is high Pin 25 = Pin 20 - 6 mV

Rx level is high Pin 25 = Pin 20 — 150 mV

Comparator output is connected to the attenuator control inside of IC1.

5) Voice Detector

The output of the mic amp (Pin 10 of IC201) is supplied to Pin 13 of IC201 as a control signal for the voice detector.

6) Attenuator Control

The attenuator control detects the setting of the volume control through Pin 24 of IC201 to automatically adjust for changing ambient conditions.

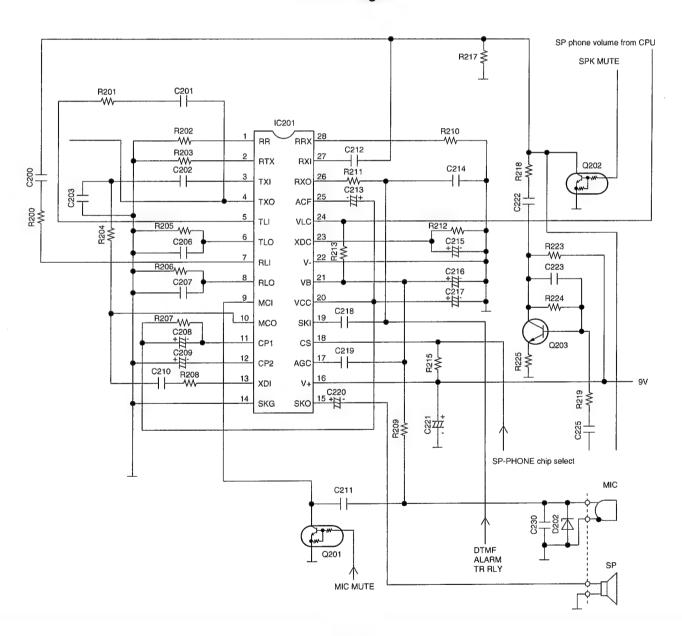


Fig. 33

CABINET AND ELECTRICAL PARTS (Base Unit)

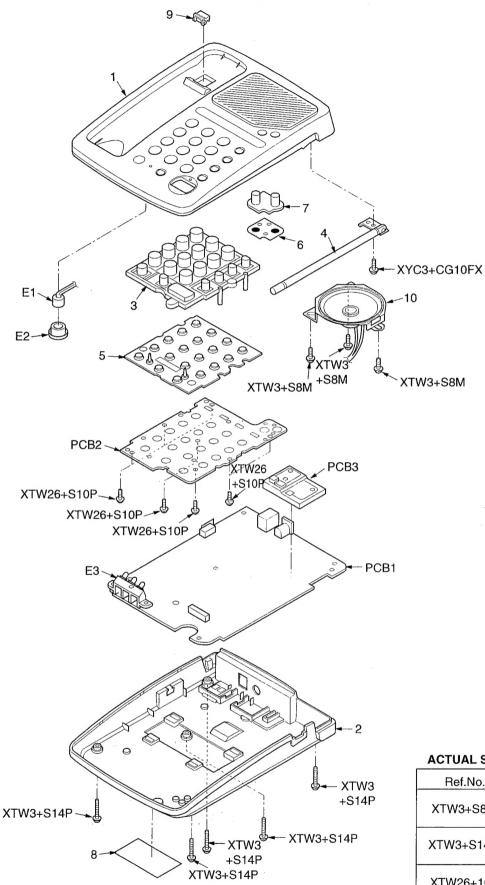


Fig. 41

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ACTUAL SIZE OF SCREWS

AOTOAL SIZE	51 0011E110
Ref.No.	Figure
XTW3+S8M	
XTW3+S14P	(mmmm
XTW26+10P	(Janaana)
XYC3+CG10FX	

REPLACEMENT PARTS LIST	Ref. No.	Part No.	Part Name & Description	Pcs/Set
Note: Portable Handset			MAIN P.C.BOARD PARTS	
1. RTL (Retention Time Limited)	PCB100	PQWPTC911BR	P.C.BOARD ASS'Y (RTL)	1 1
The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.	IC201 IC202	MN150837KD2 AN6122FA	(ICS) IC IC	1 1
After the end of this period, the assembly will no longer be available. 2. Important safety notice.	IC203	AN6183SAE1	IC ;	S 1
Components identified by a Δ mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. 3. The S mark indicates service standard parts and may differ from production parts. 4. RESISTORS & CAPACITORS Unless otherwise specified. All resistors are in ohms (Ω) K=1000Ω, M=1000ΚΩ All capacitors are in MICRO FARADS (μF) P= μμF *Type &Wattage of Resistor	Q201 Q202 Q203 Q204 Q205 Q210	2SD1819A 2SD1819A PQVTDTB123E PQVTDTC144TU PQVTDTC144TU PQVTDTC143E	(TRANSISTORS) TRANSISTOR(SI) TRANSISTOR(SI) TRANSISTOR(SI) TRANSISTOR(SI) TRANSISTOR(SI) TRANSISTOR(SI)	1 1 1 1 1 1
Type ERC:Solid ERX:Metal Film PQ4R:Carbon ERD:Carbon ERG:Metal Oxide ERS:Fusible Resistor PQRD:Carbon ER0:Metal Film ERF:Cement Resistor Wattage 10,16:1/8W 14,25:1/4W 12:1/2W 1:1W 2:2W 3:3W *Type & Voltage of Capacitor Type	D201 D202 D203 D205 D206 D207 D208	PQVDPTZTE25 PQVDEC15 PQVDRB751V4 MA110 MA141WK MA8150 PQVDPY1112H	(DIODES) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) LED	1 1 1 1 1 1 1 1
ECFD:Semi-Conductor	D209 D212 D213 D214 D215 D216 D218 D220	PQVDPY1112H PQVDBR1112H PQVDPY1112H PQVDPY1112H PQVDPY1112H PQVDPY1112H PQVDPY1112H MA110 MA110	LED LED LED LED LED LED LED DIODE(SI) DIODE(SI)	1 1 1 1 1 1 1 1 1 1
2E:250V	L201 L202 L203 L301	PQLQR3ER10K PQLQR3ER10K PQLQR3ER10K MQLRE10NJF	(COILS AND TRANSFORMERS) COIL COIL COIL COIL	1 1 1
101	VR201 VR202 VR203	EVN5ESX50B15 EVN5ESX50B15 EVN5ESX50B54	(VARIABLE RESISTORS) VARIABLE RESISTOR VARIABLE RESISTOR VARIABLE RESISTOR	1 1 1
104 PQAX3P16Y SPEAKER 1 105 PQJT10145Z CHARGE TERMINAL 3 106 PQSA10069Z ANTENNA (for Black Version) 1 106 PQSA10069Y ANTENNA (for White Version) 1 107 PQSX10073Z KEYBOARD SWITCH 1	X201 X202	PQVBTCC3.99M PQVCL3276N9Z	(CRYSTAL OSCILLATORS) CRYSTAL OSCILLATOR CRYSTAL OSCILLATOR	1 1
108 PQXA36SVC CHARGE BATTERY 1 109 PQHR10601Z SPACER 1 110 PQHG10504Z SPACER 1 111 PQHX10816Z INSULATOR 1 112 PQHG10500Z SPACER 1 113 PQHX10792Z SPACER 1	E101 E102 CHG(+) CHG(-) CHG(C) CN203	PQEFBDB111GP PQJM122Z PQJT10090Z PQJT10090Z PQJT10090Z PQJT10090Z PQJP2D13Z	(ELECTRICAL PARTS) BUZZER MICROPHONE BATTERY TERMINAL S BATTERY TERMINAL S BATTERY TERMINAL S CONNECTOR	1 1 1 1 1
	R205	ERJ3GEYJ473 ERJ3GEYJ103 ERJ3GEYJ105 ERJ3GEYJ103 ERJ3GEYJ103 ERJ3GEYJ332	(RESISTORS) 47K 10K 1M 10K 10K 3.3K	1 1 1 1 1

	1	T	T ₂ (2.1
Ref. No.	Part No.	Part Name & Description	Pcs/Set
R207	ERJ3GEYJ100	10	1
R209	PQ4R10XJ105	1M	1 1
R210	ERJ3GEYJ103	10K	
R211	ERJ3GEYJ332	3.3K	1 1
R212	ERJ3GEYJ222	2.2K	1 1
R213	ERJ3GEYJ472	4.7K	1 1
R214	ERJ3GEY0R00	0	
R217	ERJ3GEYJ103	10K 10K	1 1
R218	ERJ3GEYJ103 ERJ3GEY0R00	0	
R219			1 1
R220	ERJ3GEYJ473	47K	
R221	ERJ3GEYJ100 ERJ3GEYJ104	10 100K	1 1
R222 R223	ERJ3GEYJ563	56K	1 1
R224	ERJ3GEYJ153	15K	1
R225	ERJ3GEYJ153	15K	1
R226	ERJ3GEYJ103	10K	1
R227	ERJ3GEYJ103	10K	1
R229	ERJ3GEYJ563	56K	1
R230	ERJ3GEYJ124	120K	1
R231	ERJ3GEYJ104	100K	1
R232	ERJ3GEYJ104	100K	1 1
R233	ERJ3GEYJ220	22	1 1
R234	ERJ3GEYJ223	22K	1 1
R235	ERJ3GEY0R00	0	1 1
R236	ERJ3GEYJ333	33K	1
R238	ERJ3GEYJ333	33K	1 1
R240	ERJ3GEYJ102	1K	
R241	ERJ3GEYJ273	27K	1
R242	ERJ3GEYJ273	27K 33K	1 1
R243	ERJ3GEYJ333	2.2K	1 i 1
R245 R246	ERJ3GEYJ222 ERJ3GEYJ100	10	1
R247	ERJ3GEYJ394	390K	1
R248	ERJ3GEYJ474	470K	1
R249	ERJ3GEYJ102	1K	1
R250	ERJ3GEYJ103	10K	1
R251	ERJ3GEYJ222	2.2K	1
R252	ERJ3GEYJ105	1M	1
R254	ERJ3GEYJ331	330	1
R255	ERJ3GEYJ331	330	1
R258	ERJ3GEYJ104	100K	1
R259	ERJ3GEYJ104	100K	1
R260	ERJ3GEY0R00	0	1
R261	ERJ3GEY0R00	0	1
R262	ERJ3GEYJ102	1K	
R263	ERJ3GEYJ103	10K	1
R264	ERJ3GEYJ101	100	1 1
R265	ERJ3GEYJ101	100	1 1
R266	ERJ3GEYJ102	1K 100	1
R267	ERJ3GEYJ101 ERJ3GEYJ104	100K	1
R268 R269	ERJ3GEYJ104 ERJ3GEYJ153	15K	1
R270	ERJ3GEYJ331	330	1
R270	ERJ3GEYJ331	330	1
R271	ERJ3GEYJ331	330	
R273	ERJ3GEYJ331	330	1
R274	ERJ3GEYJ681	680	1
R275	ERJ3GEYJ104	100K	1
R276	ERJ3GEYJ330	33	1
R277	ERJ3GEYJ104	100K	1
R279	ERJ3GEYJ104	100K	1
R280	ERJ3GEYJ104	100K	1
R281	ERJ3GEYJ102	1K	1
1		(CAPACITORS)	
C203	ECEA0JK221	220	S 1
C204	ECUV1H103KBV	0.01	1
C205	ECUV1H103KBV	0.01	S 1
C206	ECEA1CKS470	47	اال

Ref. No.	Part No.	Value	Pcs/Set
C207	ECUV1H103KBV	0.01	1
C208	ECUV1H101JCV	100P	1
C209	ECUV1H822KBV	0.0082	1
C210	ECUV1H101JCV	100P	1
C211	ECUV1H103KBV	0.01	1
C214	ECEA1CKS470	47 S	1
C215	ECUV1C104KBV	0.1	1
C216	PQCUV1C474ZF	0.47	1
C217	ECUV1H222KBV	0.0022	1
C218	ECEA1CKS100	10 S	1
C219	ECUV1C104ZFV	0.1	1 1
C220	ECUV1H472KBV	0.0047	1 1
C221	ECUV1C104KBV	0.1	1 1
C222	ECUV1H103KBV	0.01	1
C223	ECUV1C683KBV	0.068	1
C224	ECUV1C683KBV	0.068	1
C225	ECUV1H103KBV	0.01	1
C226	ECUV1H103KBV	0.01	1
C227	ECUV1C104ZFV	0.1	1
C228	ECUV1H682KBV	0.0068	1
C230	ECUV1H333KDV	0.033 S	
C232	PQCUV1C105ZF	1	1 1
C232	ECUV1C104KBV	0.1	1 1
C233	ECUV1C104ZFV	0.1	1 1
C234	PQCUV1C105ZF	1	1
C230	ECUV1H471JCV	470P	1 1
C237	ECUV1H47186V	0.0047	1
C239	PQCUV1C474ZF	0.47	i
C240	PQCUV1C105ZF	1	1
C240	ECUV1C104KBV	0.1	1
C243	ECEA0JKA331	330	1
C244	ECUV1C104ZFV	0.1	1
C246	ECEA1CKS470	47 S	1
C247	ECUV1C104ZFV	0.1	1
C248	ECUV1H180JCV	18P	1
C249	ECUV1H180JCV	18P	1
C251	ECUV1C104KBV	0.1	1
C253	ECUV1H103KBV	0.01	1
C255	ECUV1C104KBV	0.1	1
C256	ECUV1C104KBV	0.1	1
C257	PQCUV1C105ZF	1	1
C258	ECUV1C104ZFV	0.1	1
C259	ECUV1C104KBV	0.1	1
C260	PQCUV1E104MD	0.1	1
C261	ECUV1C104KBV	0.1	1
C264	ECST0JY106	10	1
C314	ECUV1H050CCV	5P	1
L302	ECUV1H030CCV	3P	1
12002			
			1
	<u> </u>	RF P.C.BOARD PARTS	
			,
PCB200	PQLZ10001Z	P.C.BOARD ASS'Y (RTL)	1
	1		

Ref. No.	Part No.	Part Name & Description	Pcs/Set					
	KX-TC911-B/KX-TC911-W							
		ACCESSORY PARTS						
A1 A2	KX-TCA1-G PQJA10075Z	AC ADAPTOR A	l .					
A3	PQKL24Z0	WALL MOUNT BRACKET	1					
АЗ	PQKL24Y81	(for Black Version) WALL MOUNT BRACKET (for White Version)	1					
A4	PQYNTC911BR	BATTERY COVER	1					
A4	PQYNTC911WR	(for Black Version) BATTERY COVER	1					
A5	PQQW11914Z	(for White Version) QUICK REFERENCE GUIDE	1					
A6	PQQX11891Z	(for English and Spanish) INSTRUCTION BOOK	1					
		PACKING MATERIALS						
P1	PQPP170Z	PROTECTION COVER 1						
P2	XZB10X35A02	PROTECTION COVER	1 1					
P3	PQPD10386Z	CUSION	1					
P4	PQPN10632Z	CUSION	1 1					
P5	PQPK12489Z	GIFT BOX (for Black Version)	1 1					
P5	PQPK12551Z	GIFT BOX (for White Version)	1					
		TOOL						
ZZ1	PQZZ16K5Z	EXTENSION CORD	1					
Note PQZZ16K5	Z is useful for servicin	g (it make sevicing easy).						